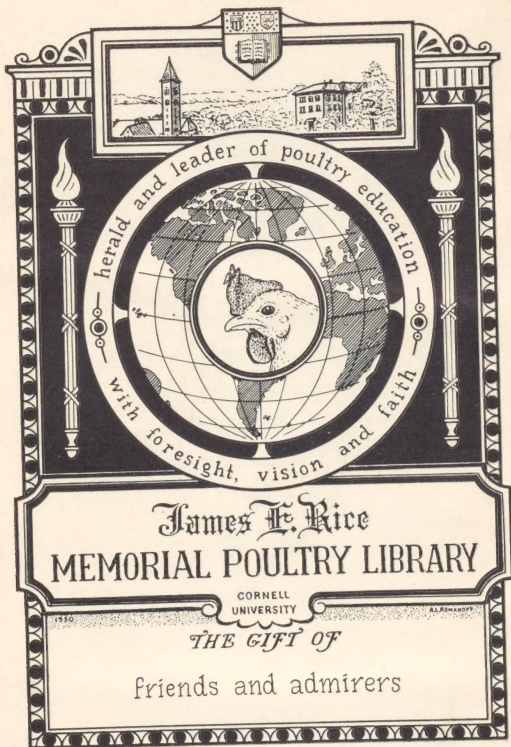


A
PRACTICAL TREATISE
ON
BREEDING, REARING, AND FATTENING.
ALL KINDS OF DOMESTIC POULTRY,
PHEASANTS, PIGEONS, AND RABBITS

MOUBRAY

SF
71
L42
1824



Date Due

Jan 7 '52 X

JAN 19 57



RICE

SF

71

L42

1824

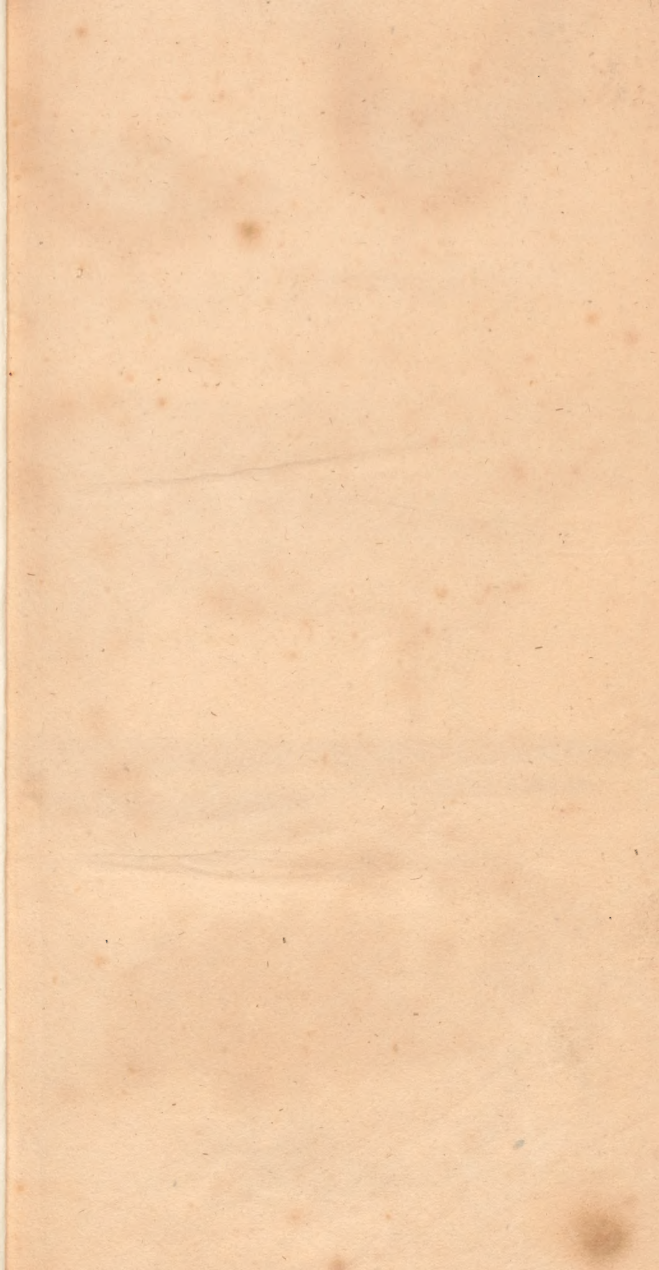
Cornell University Library
SF 71.L42 1824

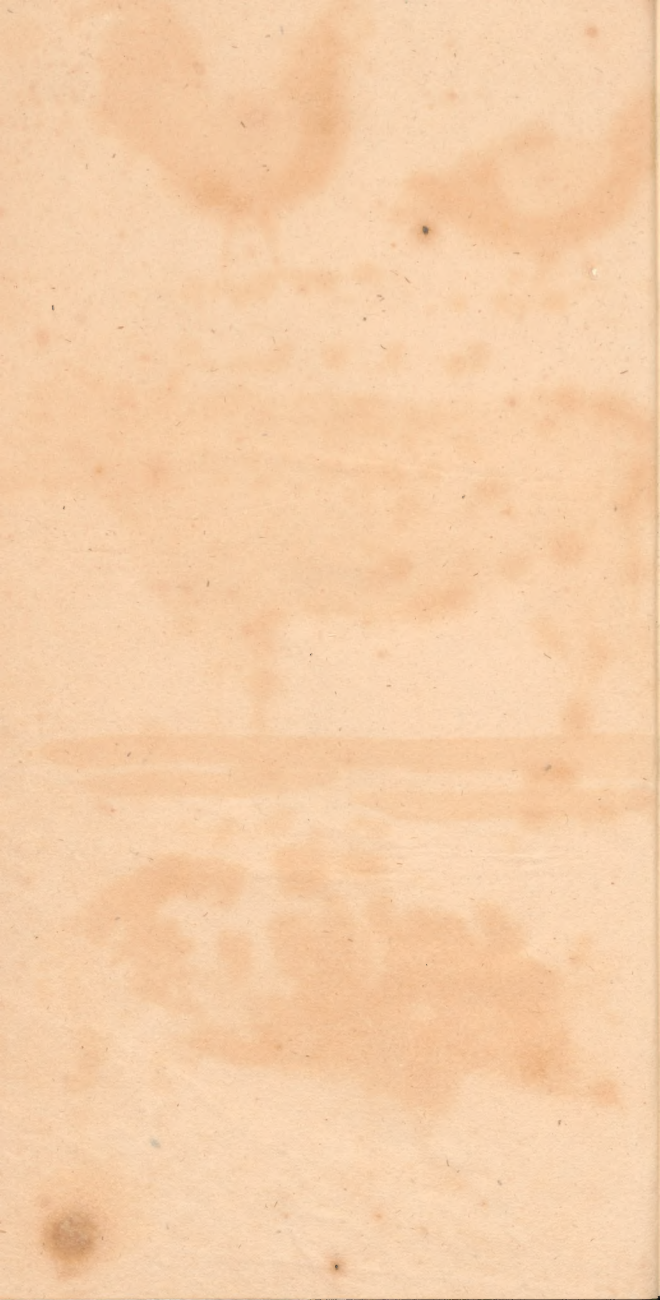
A practical treatise on breeding, rearing



3 1924 003 687 948

mann, hale



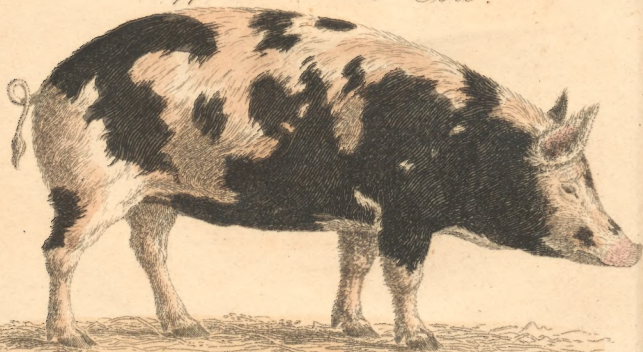




Spanish Cock & Hen.



Suffolk Milch Cow.



Oxford Dairy Pig.

A
Practical Treatise
ON
BREEDING, REARING, AND FATTENING,
ALL KINDS OF
DOMESTIC POULTRY,
Pheasants,
PIGEONS, AND RABBITS;
INCLUDING
An interesting Account of the Egyptian Method of hatching Eggs
by artificial Heat, and the Author's Experiments thereon.
ALSO THE
Management of Swine, Milch Cows, and Bees,
AND
INSTRUCTIONS FOR THE
PRIVATE BREWERY;

By BONINGTON MOUBRAY, Esq.

FIFTH EDITION.

LONDON:
PRINTED FOR SHERWOOD, JONES, AND CO.
PATERNOSTER ROW.

1824.

ca
SF71

L42 *Bolton*

1824

ca F5423

TO
HER GRACE,
THE
Duchess Dowager of Rutland,

FROM A
SENSE OF HIGH RESPECT

FOR
HER MOST LAUDABLE AND EXEMPLARY
ATTENTION

TO
RURAL AND DOMESTIC ECONOMY,
THIS SMALL WORK

IS, WITH THE UTMOST DEFERENCE, INSCRIBED,

BY

HER GRACE'S

MOST HUMELE AND MOST DEVOTED SERVANT,

THE AUTHOR.

Steele's State 132. #2.12 Country & War 31 32

PREFACE

TO THE
FIRST AND SECOND EDITIONS.

THE small Work which I here present to the reader, for his use and information, I may presume to style truly practical, since I have, throughout my life, been a breeder and keeper, and also an amateur of domestic poultry, pigeons, and rabbits ; at some periods, upon rather a considerable scale ; and have for many years together, kept a register of the results. I have farther done that which, I believe, no other man has taken the pains to do,—kept a regular stud book for those breeders, scarcely one of which was so poor as to be without a name ; and Regulus, Sampson, Flea-catcher, Selima, Moreau, Isaac, and Tom Paine, shine with peculiar lustre on my poultry and pigeon list ; whilst Corney Buttercup, Adam, Beelzebub, Lucifer, Carolina, Hecuba, make a figure equally splendid and equally useful, among the rabbits. I think *Montaigne* says some where, that if a man would sit down and describe that which he has known practically, upon almost any subject, he could scarcely fail of being useful. Just so far my ambition extends. Nor is the world entirely without need of advice on this subject, not-

withstanding its antiquity, and the multitude of counsellors. Of this fact I had a signal proof, in a visit a few years since, to an Hon. Baronet, in whose extensive park, and most convenient yards and offices, and upon a soil excellently adapted, I found a sufficiency of poultry could not be raised for the family use ; in consequence of which, a very considerable annual expense was incurred at a neighbouring town, for an additional supply. This was regretted, and described to me as an unaccountable circumstance, by the housekeeper. I have here, moreover, an eye to a favourite plan of mine, making the country-house its own mart for the supply of all necessaries, in a far more ample degree than it usually is ; implicating, among other domestic objects, poultry, rabbits, fish, mutton, small beef, and an equal abundance of the superior, as of the orchard fruits.

In fine, I have avoided scientific detail, and have addressed plain understandings in the plainest language, aiming at utility solely ; and I trust, the keeper of half a dozen hens and a cock, in the corner of his yard, will receive information, in degree, equally useful and satisfactory, with another who may desire to enter upon the most extensive plan.

The present, or SECOND EDITION, contains

additional articles on PHEASANTS, and on SWINE: the latter I was induced to add on the representation of several friends, that many persons who keep a poultry-yard for the supply of their table, feel it convenient also to have a breeding sow, or two or three pigs, as a still more substantial aid, in these extravagant times, towards the support of their household. Such economists would surely desire to be led into the right path, and my friends professed to think me no improper guide, knowing that I have been a considerable breeder and feeder of pigs.

The following letter to the publishers, of a Right Hon. Baronet, late President of the Board of Agriculture, the author of this little book feels peculiarly honourable to himself, and a gratifying reward for his pains, as proceeding from a man who, through so great a part of his life, has laboured to obtain a right understanding of every thing which appertains to rural affairs, and who has thence actually conferred so many solid benefits on his country. With respect to the injunctions of Sir John Sinclair, I had already anticipated them in part; but I could find nothing of material interest respecting poultry in the books he quotes, agricultural writers, in general, neglecting that subject, as of inferior concern,

unless indeed we except one, *and him there will be no doubt that I consulted.* I however recollect the description of a most complete poultry-yard, some years since, either in the *Annals of Agriculture*, or *Communications to the Board*. As to considerable poultry-feeders in and about London, granting there be any such, exclusive of the goose-feeders, they must be sought, I apprehend, among the poulterers.

A critic in one of the Magazines, objects to my position, that “no live stock is less liable to disease than the rabbit, with regular and careful attention.” I repeat the assertion, coupled with another, namely, that without regular and careful attention, no live stock is more precarious.

May 27, 1816.

*Letter of the Right Hon. Sir John Sinclair, Bart.
to Messrs. Sherwood and Co.*

(COPY.)

GENTLEMEN,

I have read over Mr. Monbray's *Treatise on Domestic Poultry*, which seems to be the best work hitherto printed on that subject; but it might be much improved by a careful examination of all the *County Reports*, and other recent agricultural publications. The reports should be specifically referred to, when quoted, by the page. I will trouble you to procure from the author, or by any other channel, the names of the principal feeders of poultry, in and about London, and their places of abode.

(Signed)

JOHN SINCLAIR.

Nov. 1815.

With the *Third Edition*, in the hope of rendering these pages additionally useful, the reader is presented with the results of the

Author's observation and practice in the *Family Dairy*. The convenience of milk, butter, and cream, in an English Country House, is indispensable ; and the object is to obtain those in sufficient plenty, in an appropriate husband-like style, and within the fair line of expense. An attention to the rules herein recommended, the author has no reason to doubt, will not fail to assure such desirable effects.

March 1, 1819.

The FOURTH EDITION contains an addition on the *Nature and Management of Bees* ; a subject on which there has ever been a notable disagreement amongst Economists, some advocating it as a matter deserving universal attention, others decrying it as a thing of the meanest consequence. The Author has endeavoured to reconcile this difference, and trusts he has succeeded. The Fowls and Animals exhibited in the Frontispiece, were selected individuals, drawn from the life by Mr. Webb.

The PIG is a most correct likeness. It was bred in Bucks, but is of the Oxfordshire dairy breed. These breeds were originally, although light in the ear, yet, in general, *lop-eared*, with a few, as is usual, *up-eared* ; and that form of the ear has, of late years, become more common, the feeders, I believe, esteeming the upright, or prick-eared pigs, as the speediest thrivers and best travellers. The arched or roach-back, also is preferred, as consisting of the best part of the carcase to the cutting butcher, by affording a large space for pork chops. The up-ear, I am assured, has not been derived from any alien or inferior cross. My ancient and respected friend, Mr. Wynt, from whom I have received constant and beneficial instructions on these subjects, through such a long course of years, sold this, in a lot of dairy pigs, at Finchley, and gave me the opportunity of having its form delineated.

The Suffolk Cow is the property of Mr. Brown, of the Southampton Arms, Camden Town, and gives remarkably rich milk, as well as a profitable quantity. The head, perhaps the chief index of the breed, is correctly drawn ; but the picture appears more *leggy*, and somewhat less substantial in form than the original.

The Spanish FOWLS were sold by Mr. Castang to a person at Holloway, who says, notwithstanding their large size, they are perfectly white fleshed and delicate.

Nov 21, 1821.

PREFACE.

As an addition to the FIFTH EDITION of this little book, the Author conceives, he could not fix on any subject more useful, or more generally interesting to his Country Readers, than that of the PRIVATE BREWERY—and the consideration which more especially served to fix his choice, was, that he has been occasionally and personally conversant in the practice, throughout the greater part of his life. Indeed, this has been one of his hobby horses, of which he has always kept a competent number: and happy is he, who hath his quiver full of them—warranted of the rational and profitable class—he shall have no need of steel, of cold lead, of ratsbane, or of a hempen necklace; nor be reduced to the lamentable necessity of taking to his chair, and beating the devil's tattoo over the miseries of life, which assuredly will never submit to such a remedy. If the *tædium vitæ*, wearisomeness of life, can find a remedy, it must consist in virtuous and useful action, the sphere of which is confined to neither

town nor country, but of which the latter is, in an eminent manner, the appropriate theatre.

With the common rules for making beer, already so often repeated, the author has also, to the best of his experience and information, dilated on the nature and properties of that universal English beverage, to the end, he trusts, that his Readers may profit thereby, and escape all frauds and deceptions, those excepted, which they may chuse voluntarily to impose on themselves.

May 10, 1824.

ERRATA.

- Page, 316, line 10, for *sweet flag*, r. sweet flag.
320, — 21, for *contributes*, r. contribute.
321, — 9, for *fomenting*, r. fermenting.
332, — 5, for *settling*, r. sitting.
336, — 22, for *extracts the water*, r. extracts the goodness of the water.

CONTENTS.

SECTION I.

	Page.
<i>Various Species</i>	1
<i>Customs of other Countries</i>	ib.
<i>Popular Opinion</i>	2

SECTION II.

<i>Qualities of the Flesh of Poultry</i>	4
<i>The Bustard</i>	6
<i>The Aquatic Species</i>	8

SECTION III.

<i>Gallinaceous Fowls</i>	11
<i>Game</i>	12
<i>Cock-fighting, &c.</i>	13
<i>Poland</i>	18
<i>Spanish</i>	20

SECTION IV.

<i>The Turkey</i>	24
<i>The Duck</i>	28
<i>The Goose</i>	34
<i>Pea and Guinea Fowls</i>	39
<i>The Swan</i>	41

SECTION V.

<i>On breeding and rearing Chickens</i>	44
<i>Precautions</i>	50

SECTION VI.

<i>Choice and Treatment of Breeding Stock</i>	52
<i>Attention during Incubation</i>	60

SECTION VII.

<i>Hatching of the Brood</i>	62
------------------------------------	----

SECTION VIII.

<i>Hatching Eggs by Artificial Heat</i>	72
<i>Eggs, Feathers, &c.</i>	97

	Page.
SECTION IX.	
<i>Pheasants</i>	100
<i>Instructions for breeding ditto</i>	105
<i>A Receipt for making Alum Curd</i>	108
SECTION X.	
<i>On feeding and fattening Chickens</i>	113
SECTION XI.	
<i>Breeding and management of the Turkey</i>	131
<i>Aquatic Fowls</i>	137
<i>Spanish and Embden Geese</i>	148
SECTION XII.	
<i>Pigeons</i>	149
SECTION XIII.	
<i>Rabbits</i>	176
SECTION XIV.	
<i>On the Diseases of Poultry and Pigeons</i>	192
SECTION XV.	
<i>Swine</i>	200
<i>Uses</i>	201
<i>Species and Varieties of the Genus</i>	ib.
<i>British Varieties</i>	202
<i>Convenience for Swine</i>	206
<i>Purposes in Feeding</i>	208
<i>Choice of Varieties</i>	209
<i>Breeding</i>	210
<i>Store feeding, &c.</i>	217
<i>Fattening</i>	219
<i>The Diseases of Swine</i>	223
SECTION XVI.	
<i>Milch Cows</i>	224
SECTION XVII.	
<i>Bees</i>	277
SECTION XVIII.	
<i>Private Brewing</i>	301

DOMESTIC POULTRY,

&c. &c.

SECTION I.

Various Species.

UNDER the term DOMESTIC POULTRY, in this country, are generally understood—the *Chicken* or *Fowl*, *Turkey*, *Duck*, *Goose*, *Pea* and *Guinea Fowl*; to which, perhaps, may be added the *Swan*. The wild varieties of the above species, of the duck more especially, are objects of pursuit to the sportsman, and to those inhabitants of the sea coasts, and of the vicinities of lakes and rivers, where wild fowl are taken in decoys for market.

CUSTOMS.

IN Britain, where a greater quantity of butcher's meat is consumed than probably in any other part of the world, poultry has ever been deemed a luxury, and consequently not reared in such considerable quantities as

in France, Egypt, and some other countries, where it is used more as a necessary article of food, than as a delicacy for the sick, or a luxury for the table. In France, poultry forms an important part of the live stock of the farmer, and it has been said of that country, the poultry yards supply a much greater quantity of food to the gentleman, the wealthy tradesman, and the substantial farmer, than the shambles do; and it is well known that, in Egypt, it has been from time immemorial a considerable branch of rural economy, to raise domestic poultry for sale, hatched in ovens by artificial heat. The warmer climates are far more favourable than ours for the purpose of raising poultry, and the same rule necessarily holds with respect to this country, where the warmest and driest soils are best adapted to this production, more especially of the chicken and the turkey.

POPULAR OPINION.

It has been a general and popular topic of declamation, that in former and presumed happier times, our small farmers' wives raised a superior quantity of poultry to that which has been produced of late years; a position, at best, very questionable, since poultry has ne-

ver yet risen in price, beyond the proportion of other articles of food, and since the demand of the markets has been supplied in as full a measure as formerly. Suppose a heath or common, on which poultry has been customarily bred, is inclosed and improved into farms, is it not probable that, generally at least, as large a quantity of poultry is reared as upon the land in its former state of waste, and producing no corn, a food so absolutely necessary for that kind of stock? In fact, it is open to the observation of every one, that poultry has never been in this country a favourite or prevailing article of diet with the lower or middling orders of the people; thence our farmers, whether little or great, could never be more profitably employed, whether for themselves or the community, than in the production of the more substantial articles of food: in the mean time, the demand for the luxury of poultry never fails to be satisfied to the utmost extent, and a decline of price in that article, will be the natural consequence of a general decline in the meat market.

SECTION II.

Qualities of the Flesh of Poultry.

GALLINACEOUS FOWLS, OR CHICKENS. In the opinion of physicians, both ancient and modern, the flesh of the chicken at three months old, is the most delicate and easy to digest of all other animal food: thence best adapted to the stomachs of invalids, or the constitutionally weak, being the least alkalescent of all animal food, free from irritation, and affording a mild and innoxious chyle. Age makes a striking difference in the flesh of fowls, since, after the age of twelve months, it becomes tougher and more insoluble. The cock indeed, at that age, is only used for making soup, whilst the pullet is still excellent, although a more substantial viand than the chicken. Whilst young, the cock and hen are equally delicate.

The CAPON, or castrated cock, has ever been esteemed one of the greatest delicacies, preserving the flavour and tenderness of the chicken, with the juicy maturity of age, the

flesh yielding a rich and good chyle, and without any tendency to inflammation. Capons are usually *crammed*, and made excessively fat, perhaps to the verge of disease, in which state their flesh is neither so delicately flavoured, nor probably so wholesome as when more naturally fed. Indeed, the flesh of the barn-door fowl, or that fed in a state of nature, and at liberty to take exercise, is universally acknowledged to excel in genuine richness of flavour. There is probably greater variety of size, figure, and appearance, in the chicken, than in any other species of fowl, and also considerable variety of quality, which will be pointed out under their different heads.

THE TURKEY. The flesh of the turkey is somewhat more dense of fibre, and more alkaliescent and substantial than that of the chicken, but it is reckoned nourishing and restorative. Age produces a similar effect as in the chicken, whence the turkey, after a certain period, is good for little except stewed.

The true black Norfolk turkey is esteemed superior to all others. The **COPPER** turkey, (see varieties) originally of the wild American breed, proved too tender, and degenerated in this country.

GUINEA FOWLS are not so white of flesh as

the common, but more inclined to the pheasant colour; in quality, short and savoury, like the flesh of the pheasant, and easy of digestion. In fact, the guinea fowl is reckoned by many a good substitute for the pheasant. They are very prolific, and their eggs nourishing and good.

GUINEA FOWLS are in season for the table when game is going out; namely, from February to June; PEA FOWLS also are used in the same season.

The PEACOCK, however, has long ceased to form a common dish for the table in this country, and probably, from its coarseness and ill colour, when it did, the motive was rather show than use.

BUSTARDS. The Bustard is the largest land bird of Europe, the cock generally weighing from twenty-five to twenty-seven pounds. The neck a foot long, the legs a foot and a half. It flies with some little difficulty. The head and neck of the cock ash coloured; the back barred transversely with black and a bright rust colour. The greater quill feathers black, the belly white; the tail, consisting of twenty feathers, marked with broad black bars: it has three thick toes before and none behind. There are

upwards of half a dozen species of this bird, two or three of which (African) are crested. The LITTLE Bustard, differs only in size, not being larger than a pheasant. They were known to the ancients in Africa, and in Greece and Syria; are supposed to live about fifteen years; are gregarious, and pair in Spring, laying only two eggs, nearly of the size of a goose-egg, of a pale olive brown, marked with spots of a darker hue. They sit about five weeks, and the young ones run, like partidges, as soon as delivered from the shell. The cocks will fight until one is killed or falls. Their flesh has ever been held most delicious, and I suppose they are fed upon the same food as the turkey.

There were formerly great flocks of bustards in this country, upon the wastes and in the woods, particularly in Norfolk, Cambridgeshire, and Dorset, and in various parts of Scotland, where they were hunted with greyhounds, and very easily taken. Buffon was mistaken in his supposition that these birds are incapable of being propagated in the domestic state, chiefly on account of the difficulty of providing them with proper food, which, in their wild state, he describes to be heath-berries and large earth-worms. Pro-

bably the HAW or white-thorn berry might succeed equally well. Mr. Castang informs me that a person in Norfolk has at this time some bustards : also that he had last year an old bustard and four eggs, which he sold to Lord Stanley, and a pair of bustards to the Earl of Darnley. To those who aim at variety and novelty in this line, the bustard appears peculiarly an object for propagation and increase, since the flesh is of unrivalled excellence, and it is probable this fowl will render great weight of flesh for the food consumed.

The Aquatic Species.

The Duck. The flesh of the duck is of a savoury and somewhat of a stimulant nature, is said to afford a preferable nourishment to that of the goose, being not so gross, and more easily digested : and that of the wild duck is reckoned still more easy of digestion than the tame, although more savoury.

The Goose. The whole anserine or goose tribe, of which there is a great variety, are held to afford a food highly stimulant, of a strong flavour and viscous quality, and of a putrescent tendency. The flesh of the tame goose is more tender than that of the wild,

but generally, it is a diet best adapted to good stomachs and powerful digestion, and should be sparingly used by the sedentary and weak, or by persons subject to cutaneous diseases.

The fat, or grease of the goose, is more subtle, penetrating, and resolvent, than the lard of swine, and is an excellent article to be reserved for domestic use, in various cases. Sportsmen of the old school held the opinion, extraordinary as it may now seem, that when a kennel of hounds show symptoms of *rabies*, or madness, the best prophylactic remedy, is to keep a considerable flock of geese in it, for a length of time ; and the late Dr. James, exceedingly attached to dogs, inclined to give a degree of credit to this presumed remedy, which, if real, must consist in the saline and penetrative qualities of the anserine excrement.

The SWAN. The cygnet, or young swan only, is reckoned eatable, and that after a peculiar preparation, although in old time, the swan formed a dish of embellishment and show at great feasts. Swan fat possesses probably much the same qualities as that of the goose above described, but supposed somewhat more mild and emollient :

The skin of the swan, applied to the parts affected, is said to be efficacious in rheumatic pains, and to strengthen the nervous system: applied to the stomach, it dispels flatulencies and assists digestion.

• **CYGNETS.** • Young swans are sometimes fattened for home use, or presents, but are not to be purchased.

SECTION III.

GALLINACEOUS FOWLS.

Varieties.

WE have no history so ancient as the domestication of the common cock and hen. The cock was supposed to be of Persian origin, but the species has been since propagated and introduced into general use, throughout the whole world, from east to west, from the burning climate of India to the frozen zone. Although fowls used for the table are by nature granivorous, yet all the various species, the goose perhaps excepted, are carnivorous likewise, and great devourers of fish.

The principal varieties in use, of the common species of FOWLS, are—DUNG-HILL FOWLS—GAME—DARKING—POLAND—BANTAM—CHITTAGONG, OR MALAY—SHACKBAG—SPANISH, and their endless subvarieties.

The common DUNG-HILL FOWL needs no description—of middling size, every variety of colour, and to be found in every part of the country.

Game.

GAME FOWLS are too well known to require a particular description. Their plumage, particularly the red, is most beautiful and rich ; their size somewhat below the common, and their symmetry and delicacy of limbs to be compared with those of the race horse and the deer, or, in more strict analogy, with the wild species of their own genus. The ancients kept game cocks for the same purpose as the moderns ; and there is a game breed at present existing in India ; but I have not hitherto obtained any information as to the origin of our game breed, which has been established during many centuries in this country. Their flesh is of the most beautiful white, and superior to that of all other breeds of domestic fowls, for richness and delicacy of flavour, but the extreme difficulty of rearing the chickens, for their natural pugnacity of disposition shews itself at the earliest possible period, deters most breeders, excepting those who breed for the cockpit. I have many times had whole broods, scarcely feathered, stone-blind from fighting, to the very smallest individuals ; the rival couples moping in cor-

ners, and renewing their battles on obtaining the first ray of light. On this account few can be reared, and as this disposition, to a certain degree, prevails in the half bred, it prevents crossing with the game cock, otherwise a great improvement. The game eggs are smaller than common, fine shaped, and extremely delicate.

Philanthropists are in the habit of declaiming much against the practice of cock-pit battles, but, on reflection, the cruelty of that sport will be found among the least, wherein the feelings of animals are concerned, since fighting, in the game cock, is a natural and irresistible passion, and can never take place against his will, since those engaged in regular combat, upon the arena, would do so voluntarily, and with equal ardour, did they meet in the desert. Another and similar mistake is the supposed additional cruelty of arming the heels of the cock with steel, which, on the contrary, conduces to shorten the period of their sufferings. Throwing at cocks, indeed, is really a diabolical and contemptible act of barbarity, as are all other tortures which animals are *compelled* to undergo. Such are totally against the laws of reason, common sense, and common humanity, and

sufficient to bring into disgrace and contempt the code of laws in which they are tolerated. The human being who can feel pleasurable sensations, on witnessing the agonized feelings, harassment and affright, of even the meanest brute animal, deserves in the first instance, supreme and pointed contempt ; in the next, that is to say, after light imparted without effect, detestation and abhorrence.

An old German writer, of the name of Cranenstein, we are informed, gives the following account of the origin of our throwing at cocks on Shrove Tuesday. Whilst the Danes were masters of England, and lorded it over the natives, the inhabitants of a certain city, grown weary of slavery, had formed a secret conspiracy to murder their masters in one bloody night, when twelve men had undertaken to enter the town-hall by stratagem, and seizing the arms, to surprise the guard which kept it ; at which time, their fellows, upon a signal given, were to come out of their houses, and murder all opposers : but while they were putting this plan in execution, the unusual crowing and fluttering of the cocks, near the place which they attempted to enter, discovered and frustrated their design ; upon which the Danes became

so enraged that they redoubled their cruelty, exercising still greater severity over the English. Soon after, however, the English being freed from the Danish yoke, they instituted the custom of throwing at cocks, on Shrove Tuesday, the day of their disappointment, from a stupid and barbarian passion of revenge against the innocent cause of their misfortune, instead of admiring the natural vigilance of the birds, however unfortunately applied in a particular case : a reverse of the conduct of the Romans, who honoured the vigilance of the geese which saved the Capitol. This infamous sport, although at first only practised in one city, in process of time became a national diversion, and remains even to this hour, in some parts of the country, exhibiting a strong taint of original ignorance and barbarism in the national character, which has not been wiped out by legislation.

Every one has heard the horrible story of Ardesoif of Tottenham, who, upwards of thirty years since, being disappointed by a famous game cock refusing to fight, was incited by his savage passion to roast the animal alive, whilst entertaining his friends. The company alarmed by the dreadful shrieks of the poor victim, interfered, but were resisted by

Ardesoif, who threatened death to any who should oppose him ; and in a storm of raging and vindictive delirium, and uttering the most horrid imprecations, he dropped down dead. I had hoped to find this one among the thousand fanatical lies which have been coined, on the insane expectation that truth can be advanced by the propagation of falsehood ; but to my sorrowful disappointment, on a late enquiry among the friends of the deceased miscreant, I found the truth of the horrible story but too probable.

The DARING FOWL, so called from a town in Surrey, where probably the variety was first bred, and where, and in its vicinity, they are to be found in great plenty and perfection, is, in the third degree, the largest of our fowls, well shaped, having a long capacious body and short legs, and is a plentiful layer. The genuine colour entire white ; chief distinctive mark, five claws upon each foot. The white is probably not so pure, as that of certain of the dung-hill fowls, nor is the colour of the flesh, that inclining to yellow, or ivory shade. The Darking are the species generally made into capons.

In a late agricultural survey of the county of Sussex, an attempt is made to deprive

Darking of the honour of originating this famous variety of fowls, with what degree of success it would be a waste of time to enquire; it is sufficient we possess such a variety, and know where to obtain it in perfection. The surveyor pretends that the Darking fowls are all raised in the Weald of Sussex, and that Horsham is the chief market for them. That their having five claws is by no means their true and original characteristic, such peculiarity being merely fortuitous, and in fact objectionable; and that those so marked are deemed a bastard breed. No doubt it is probable that, having five claws, accidentally brought into notice, certain fine and well-formed individuals; but from those proceeded a distinguished permanent variety, and that variety bearing the name of Darking, seems a sufficient proof in favour of that town and its neighbourhood. In the mean time, the appellation, Darking fowl, has been in use, I apprehend, far beyond the memory of any one now living: and it is not at all improbable, the large Sussex breed has originated from a Darking cross, the peculiar mark of five claws, disappearing in the course of time, from the small number of Darking cocks employed, compared with that of the

Sussex or common cocks, which were not so distinguished. Such is a common case in crossing varieties of live stock ; the home variety in the end gets uppermost, as being the majority. In fine, five claws form an original distinction, in the common cock and hen, adverted to by Buffon ; nor is there any thing inconvenient or injurious in it, the fifth claw being seldom of sufficient magnitude to encumber the foot, or cause it to scratch out the eggs, as has been apprehended.

Poland.

The POLAND fowls, as they are generally called, were chiefly imported from Holland. Their colour shining black, with white tops on the head of both cock and hen. The head is flat, surmounted by a fleshy protuberance, out of which spring the crown feathers or top, white or black, with the fleshy King David's crown, consisting of four or five spikes. They are not so thickly covered with feathers as some other breeds, and still less so with down. Their form is plump and deep, and the legs of the best species not too long. Perhaps the genuine sort has always five claws, and as the Poland cock will produce occasionally white stock from

white English hens, it is not improbable, the similarity of form likewise considered, that our famous Darking breed may have been originally raised from that cross: or supposing such speculations groundless, the Darking differing as it does from the common, may have been an imported breed.

The Polanders are not only kept as ornamental, but they are one of the most useful varieties; particularly on account of the abundance of eggs they lay, being least inclined to sit of any other breed, whence they are sometimes called *everlasting layers*, and it is usual to sit their eggs under other hens. They fatten as quickly as any breed, and are in quality similar to the Darking; their flesh perhaps more juicy and of a richer flavour.

Besides the Polanders, there is a small variety now imported from Holland, called EVERY-DAY-HENS, which are everlasting layers. The eggs of the everlasting layers, generally, are not so large as those of the common hens, nor equally substantial and nutritious. This seems an obvious consequence. From October 25th to the 25th of the following September, our five Poland hens laid 503 eggs, one of them only sitting within the time. An average egg weighed 1 ounce 5 drams,

exclusive of the shell, which in this breed is very thin; the above number making a total weight of $50\frac{1}{4}$ lbs. and a fraction.

The tops of these fowls should be periodically clipped near the eyes, or they grow into the eyes of the fowls and nearly blind them, rendering them very subject to alarm and to be driven away. This is particularly necessary in wet weather.

BANTAM, a well-known small breed, originally from India, valued chiefly for its grotesque figure and delicate flesh.

There has been lately obtained a variety of Bantams, extremely small, and as smooth legged as a game fowl. From their size and delicacy, they are very convenient, as they may always stand in the place of chickens, when small ones are not otherwise to be had. They are also particularly useful for sitting upon the eggs of partridges and pheasants, being good nurses, as well as good layers.

In addition, there is a South American variety, either from Brazil or Buenos Ayres, which will roost in trees. They are very beautiful, partridge spotted and streaked; the eggs small and coloured like those of the pheasant; both the flesh and eggs are fine flavoured and delicate.

The CHITTAGONG or MALAY, another Indian variety, is, as a contrast to the Bantam, probably the largest of the Gallinaceous tribe. They are in colour, striated yellow and dark brown, long-necked, serpent-headed, and high upon the leg; their flesh dark, coarse, and chiefly adapted to soup. They are good layers, and being well fed, produce the largest of hens' eggs, and of the most substantial nutriment. Being too long legged, they are not, generally, steady setters.

Buffon introduces several foreign varieties, of which I have no practical knowledge—the HAMBURGH COCK, the WONDERFUL INDIAN COCK, and the MUSCOVITE BLACK GAME HEN. I have heard of a WEST INDIA breed which are everlasting layers. The wonderful Indian cock is described as a bird of most beautiful plumage, consisting of the following five colours—black, white, green, red, and blue. The back part of the head has a sort of fleshy substance of pyramidal figure, scaly, and of a blood-red colour: the bill thick and strong, and the breast mottled beautifully, with red and green. The tail consists of twelve large flaming feathers, resembling those of a peacock. The comb upon the head is double, with a single wattle hanging beneath the low-

er mandible, an inch and a half long; the beak and legs yellow. It is a wild fowl, but easily domesticated. Nothing is said of the quality of its flesh.

SHACKBAGS. Formerly the largest variety, but in probability it has been entirely worn out for some years. It was called the duke of Leeds' breed, his grace, more than fifty years since, being a great amateur breeder of them; but it does not appear whether his grace first raised the variety, or whether it arose merely from improving the size of the common dung-hill kind, and from any foreign cross; but the former is the most probable conjecture, on account of the whiteness and fineness of the flesh, in the genuine shackbag. The only one I ever possessed was a red one, in 1784, weighing about ten pounds, which was provided for me at the price of one guinea, by Goff the dealer, who then lived upon Holborn Hill, in London, and who at the end of two years, received him back at half a guinea, having allowed me in the interim three shillings and sixpence each, for such thorough-bred cock chickens as I chose to send him. At that period, the real duke of Leeds' breed had become very scarce; which induced the dealers to put Shackbag cocks to Malay hens, by that means keeping

up the original standard size, but entirely ruining the colour and delicate flavour of the flesh. The Shackbag fowl was a convenient substitute for the turkey, to the frequent great convenience of poulterers and inn-keepers, at Wokingham and elsewhere.

The breed of Shackbags, it has been already observed, has been many years extinct, and the substitute of the Malay cross is not satisfactory. A large variety has been since introduced with success; a cross between the Spanish and our Darking breed, the best of which are to be found in Sussex and near Woking, Berks. The Spaniard is very large, the plumage black, flesh white and delicate, but inferior in size to the old duke of Leeds' breed. They are well adapted for CAPONS, and produce the largest eggs to be obtained. This breed is now common, particularly in London; all black, black legs, larger red comb and gills—far too high on the leg, and in want of improvement in that particular.

SECTION IV.

The Turkey.

OF the TURKEY, or *Meleagris*, Buffon and others assert there is but one species, and the only varieties I am aware of, in this country, are the COPPER and WHITE, the former long in great esteem; the latter of a most delicate whiteness, contrasted with its red head, said to have been originally imported from Holland: and the Norfolk black already described.

On the etymology of the word turkey I am altogether at a loss, unless we may suppose such a name to have been ludicrously bestowed from the ostentatious strut of the bird, by way of comparison with the pompous gravity of the Turk, an idea perhaps countenanced by the erroneous notion that turkeys were indigenous to Africa, and had been originally imported from thence to Europe. The fact, however, seems to be sufficiently ascertained, that the turkey was entirely unknown to the old world, and that it had neither Greek nor

Latin names, until it received the modern Latin denomination of *Meleagris*.

The turkey was seen in America by the first discoverers, and intituled, by the Spanish doctor Fernandez, *gallus Indicus*, and *gallus pavo*, the peacock of the Indies. They were both in a wild and domesticated state in America, on the arrival of the Spaniards, the wild being represented as of the largest size, reaching even the weight of sixty pounds, and of a superior flavour, but the flesh of a red colour. There is, however, some discrepancy in these accounts, certain of our voyagers representing the wild turkeys of Virginia as carrion, utterly unfit to be eaten, and express their disappointment in the expectation of a good meal from some which they shot from a tree.

This bird, of such worth and consequence for domestic use, was most probably introduced into this country from Spain, soon after the discovery of America ; since Tusser, who lived in the reign of Henry VII. represents it as a common Christmas dish, together with pig, goose, and capon. The turkey did not reach France quite so early ; the first intelligence we have of it in that country, being at the nuptial feast of Charles IXth, in the

year 1570. They have since been domesticated throughout the civilized world, in every climate, although said not to succeed equally on the barren sands of Africa.

There is a sameness of colour in the wild turkey, and the original stock seems to have been black, domestication generally inducing a variety of colours. Yet one would suppose that white also must have been a primitive colour with them, else the transition from black to white would be rather unaccountable. In a state of nature, they are said to parade in flocks of five hundred, feeding, in general, where abundance of nettles are to be found, the seed of which is their common food : they also feed upon a small red acorn, which, in the warm and fertile parts of America, is ripe in March, when the turkeys become so fat as to be unable to fly more than a few hundred yards, and are then soon run down by dogs and horsemen. They roost upon the highest trees, and are very easily shot or otherwise destroyed, being a heedless and stupid bird. Since the planting and cultivation of such extensive tracts in America, the wild breed of turkeys has been driven into the uncultivated regions, and has long since become very rare. The Indians make elegant

clothing and beautiful fans of wild turkey feathers, and the French of Louisiana manufacture them into umbrellas. The antipathy which the turkey cock entertains for any thing of a red colour is well known : and will indeed never be forgotten by myself, who, at about the age of eight years, having on a red waistcoat, was chased by two of them, around a very extensive yard, to my most terrible affright and discomfiture. The county of Norfolk breeds the largest quantity of these fowls for market, which in the season travel, in their store state, upwards of one hundred miles, in a certain number of days, to the metropolis.

In December, 1822, two turkeys were bred and fed, and sent to Cork, one weighing 33, the other 34lbs., from Sawbridgeworth, Herts, the residence of Sir John Malcolm.

A turkey cock, the property of J. Lee, Esq. of Redbrook, near Whitchurch, which was black in the year 1821, became afterwards *perfectly white* : this extraordinary change took place so gradually, that in the middle of the moulting, the bird was beautifully mottled, the feathers being black and white alternately.

The Duck.

The GOOSE and DUCK genus is said by naturalists to comprehend upwards of one hundred species, varying considerably in size and plumage from each other; comparatively few of them have been domesticated, but the date of that domestication is far beyond all memorial or record.

This genus of fowls was deservedly a great favourite with the ancients, from the mildness and simplicity of their character, from their great fecundity, and from the cheapness and ease with which they were provided. Although the duck will eat flesh and garbage of any kind like the chicken, yet water insects, weeds, vegetables, corn, and pulse, are their general food, and, as has been already observed, the goose desires nothing but the latter. The inoffensive and harmless character is common to both species, rendering them most pleasant as well as profitable animals to keep, and the contrast between them and the chickens, in their nature and habits, is highly in favour of the goose and duck tribe. In fact, nothing can be more savage, cruel, and voracious than the very nature of the common

fowl, on which domestication and society work no softening effect. Nor is this confined to the game breed, for chickens of all kinds will tear to pieces, on the slightest occasions, their nearest akin, devouring their living flesh and entrails. That which is said of the duck, has full as much truth, when applied to the chicken; there is nothing too nasty, putrid, and abominable to human feelings for them, upon which eagerly to gratify their voracious appetites.

The following ferocious *trait* in the character of the *gallina*, or common hen, is quoted from *Reaumur*, in the new French Dictionary of Natural History. He had shut up two hens with a cock; these three individuals lived for some time in the strictest harmony: on a sudden, the hens took a dislike to the cock, and they both together attacked him, and succeeded, in the course of five or six days' ill treatment, in killing him. Surprised at such an extraordinary conduct, *Reaumur* was curious to know the cause. He gave the two hens successively several cocks. Their fury kindled anew against each of them, and they would all have experienced the fate of the first, had he left them long enough to lose all their blood and strength. The extraordinary

part of this case was, first, that the cocks destroyed were strong and bold, and would easily have governed thirty rebel hens at large, yet cooped up, did not attempt either to defend themselves, or even to avoid the attacks of the furies, their wives. Secondly, the two hens, being released from confinement, became immediately as mild and submissive to the cock, as any upon the dunghill.

Of the kind and social nature of the duck, I had a few years since the following example.

We had drawn off for the table, the whole of a lot of ducks, one excepted. This duck immediately joined a cock and hens, and became so attached to them, that it never willingly quitted their company, notwithstanding some harsh usage, particularly from the cock. It would neither feed nor rest without them, and shewed its uneasiness at their occasional absence by continual clamour. The manners and actions of the duck, whether upon land or water, are curious and pleasant to contemplate. Their regular afternoon parade and march in line, the elder drakes and ducks in front, from the pond homewards, is a beautiful country spectacle, to be enjoyed by those who have a relish for the charms of simple nature. It is as long

since as the year 1767, that I recollect the following trait in the character and manner of the duck. A parcel of ducks, probably a score, which had been accustomed to their liberty, were, for some particular reason, shut up during several hours. On the door of the coop being opened, they rushed out, threw themselves into a single rank and file, and marched with rather a quick step, three or four times around a certain space, constantly bowing their heads to the ground, then elevating them and fluttering their wings: the ceremony finished, they quickly adjourned to the water. I have laughed a thousand times at the conceit with which my boyish imagination was impressed, namely, that the act which I had witnessed, was nothing less than a duckish thanksgiving for deliverance.

The social and conversing qualifications of ducks, indeed, receive a degree of countenance from the relations of ornithologists. The habitudes of the EIDER ducks, so valuable for their down, which frequent the lakes of northern countries, are thus described; the ducks flying in the air, are lured down from the heights by the loud voice of the mallard below, which nature seems to

have furnished with powerful organs for vociferation. To this call all stragglers resort, and in a short time a lake, before naked, is completely black with water fowl. There they huddle together, extremely busy and very loud. Upon what business they are thus incessantly employed all day, is not easy to guess by us, who understand not their language. There appears no food for them in the midst of the lake, where they thus sit and cabal, nor does any action of theirs indicate a search of food: nor can courtship be the object, for which the season has not arrived; yet not one of them seems a moment at rest. Now they pursue each other; now rise up screaming, in a body, then down again; the whole appearing one strange scene of bustle, conducted with the utmost regularity, and after all with nothing at all to do.

It is a curious illustration of the *de gustibus non est disputandum*, that the ancients considered the swan as a high delicacy, and abstained from the flesh of the goose as impure and indigestible; whilst the moderns reject the flesh of the swan and eat that of the goose with a universal relish. But upon the excellence of the duck both parties seem to have agreed, as upon some self-evident,

and thence incontrovertible proposition. The ancients went even beyond our greatest modern epicures, in their high esteem for the flesh of the duck, not only assigning thereto the most exquisite flavour and delicacy, but also attributing to it important medicinal properties ; for Plutarch asserts that Cato preserved his whole household in health, by dieting them with duck's flesh as a prophylactic ; surely a most pleasant mode of taking physic ! Several of the Roman medical writers, moreover, strongly recommended the same regimen, as the most powerful means of exciting the prolific virtue in the sexes.

The opinion of a modern author respecting colour is, perhaps, most correct as it regards the goose ; it is however pretty generally to be depended on ; he says—when one has seen a wild goose, a description of its plumage will, to a feather, exactly correspond with that of any other. But in the tame kinds, no two of any species are exactly alike ; different in their size, their colours, and frequently in their general form, they seem the mere creatures of art ; and having been so long dependent upon man for support, they seem to assume forms entirely suited to his necessities.

The only variety of the common duck among us, is the Rhone duck, imported from France, generally of a dark-coloured plumage, larger size, and supposed to improve our breed. They are of darker flesh, and more savoury than the English duck, but somewhat coarse. Rhone ducks have been so constantly imported for a great number of years, that they are very generally mixed with our native breed. The English duck, particularly the white variety, and when they chance to have very light-coloured flesh, are never of so high and savoury flavour as the darker colours. Muscovy and other foreign varieties of the duck, are kept rather out of curiosity than for the table.

The white AYLESBURY are a beautiful and ornamental stock, matching well in colour with the EMBDEN GEESE. They are said to be early breeders. The CANVASS-BACKED ducks of America, bred only on the Potomac and Susquehanah rivers, are said to be the best in the world. I believe they have never yet been imported into Europe. DUCKLINGS are not safe in waters stocked with EELS.

The Goose.

The GOOSE is a considerable object of rural

economy, kept in large flocks in the Eastern and Fen counties of England. In some of those parts, their geese are exposed to the cruel operation of being annually stripped of their feathers, and it has been said that fowls, plucked alive, have been sold in the market at Edinburgh. Indeed, the interested feelings of man know no scruple, and the cruelties practised upon the poor sea fowl, which have their down and feathers torn from them, and are then cast in the sea to perish, are enormous, and yet, as it should seem, irremediable. Not so the disgusting barbarity, under the insane idea of *sport*, formerly, perhaps even now, practised in Scotland. These harmless fowls are hung up alive, by the legs; and savages, men and boys, ride at them full speed, catching them, as they can, by the neck! And there can be no doubt that, the horribly *pleasing* process of *roasting a goose alive*, as detailed by Dr. Kitchener, in his *Cook's Oracle*, invaluable, equally to the gourmand and the economist, was actually practised in former days. Indeed, we have proofs innumerable, and utterly disgraceful to this enlightened nation, of the absolute necessity of amending the enthusiastic and indefatigable Martin's Bill, and rendering it

completely comprehensive. It would have the effect of teaching men to *think and feel*, and to be convinced of the horrible and unnatural error of deriving pleasure from the racked and tortured feelings of other animals, endowed with feelings similar to their own. The present writer, nearly thirty years since, led the way to the late Lord Erskine's and Mr. Martin's Bills; indeed was then, so far as he is informed, the first *practical* writer on the subject.

A writer in the *Monthly Magazine*, December, 1823, remarks humanely on the cruelty of plucking the living goose, proposing a remedy, which I should rejoice exceedingly to find practicable and effective. He remarks on the additional torture, experienced by the poor fowl, from the too frequent unskillfulness and want of dexterity of the operator—generally a woman. The skin and flesh are sometimes so torn, as to occasion the death of the victim; and even when the fowls are plucked in the most careful manner, they lose their flesh and appetite; their eyes become dull, and they languish in a most pitiable state, during a longer or shorter period. The remedy proposed is as follows:—feathers are but of a year's growth and in the moulting season they

spontaneously fall off, and are supplied by a fresh fleece. When, therefore, the geese are in full feather, let the plumage be removed, close to the skin, by sharp scissars. The produce would not be much reduced in quantity, whilst the quality would be greatly improved, and an indemnification be experienced, in the uninjured health of the fowl, and the benefit obtained to the succeeding crop. Labour also would be saved in dressing, since the quilly portion of the feathers, when forcibly detached from the skin, is generally in such a state, as, after all, to require the employment of scissars. After this operation shall have been performed, the down from the breast may be removed by the same means. The time has arrived, I trust, for successful exertions in the cause of compassion towards tortured and helpless animals; and I presume to make a serious call on the clergy and leading aristocracy of the districts implicated, for the exercise of their influence in this case, granting the reform to be practicable.

Goose dung is a very powerful manure, and a large flock would have considerable effect in fining and improving the grass of coarse meadow land. Geese, as well as turkeys, it is well known, travel to the London markets;

but it is not so generally known that goose-feeding, in the vicinity of the metropolis, is so large a concern, that one person feeds for market, upwards of five thousand in the season. The best geese in England are, probably, to be found in the borders of Suffolk and Norfolk, and in Berkshire. Wild geese have not the superiority of the wild duck, tasting of fish, and being far inferior to the tame. The foreign fancy varieties of the goose are chiefly ornamental for lawns and waters, and as objects of curiosity.

A Goose on a farm in Scotland, two years since, of the clearly ascertained age of eighty-one years, healthy and vigorous, was killed by a sow, whilst sitting over her eggs ; it was supposed she might have lived still many years, and her fecundity appeared to be permanent. Other geese have been proved to reach the age of seventy years. It is asserted that, at the great goose-feeders near London, the stock is fed upon the purest and best food, kept in the highest state of cleanliness, and that they are among the finest and best with which the metropolis is supplied. I can neither controvert nor warrant this.

Pea and Guinea Fowls.

The **PEA COCK** and **HEN**, and **GUINEA FOWLS**, are always kept by the London dealers, whence any person in the country, desirous of breeding them, may be supplied with breeding stock. Exclusive of the consideration of ornament to a poultry yard, the peacock is very useful for the destruction of all kinds of reptiles, but at the same time, some peacocks are said to be vicious, and apt to tear to pieces and devour young chicks and ducklings, suffered to be within their reach. They are also destructive in a garden.

This most beautiful of all the feathered race, is supposed, originally, a native of India, and peacocks are said to be at present found in a wild state, upon the islands of Java and Ceylon. The history of king Solomon is a voucher for the antiquity of the peacock, and also the choice of the goddess Juno, who selected this for her favourite bird, from its gorgeous and brilliant plumage and majesty of demeanor. It is asserted by the ancient writers, that the first peacock was honoured with a public exhibition at Athens, that many people travelled thither from Macedon, to be spectators of that beautiful phenomenon, the paragon of

the feathered race. It is probable the ancients, as well as the moderns, introduced the peacock upon the table, rather as an ornament than a viand. There are varieties of this bird, some white; they perch on trees like the turkey. Their age extends to twenty years, and at three, the tail of the cock is full and complete. The cock requires from two to four hens, and where the country agrees with them, they are very prolific. They are granivorous like other domestic fowls, preferring barley.

The PINTADA, or Guinea Hen, has been said to unite the character and properties of the pheasant and the turkey. It is about the size of the common hen, but standing high upon its legs, gives it the appearance of a larger size. The back is round, with the tail turned downwards like the partridge. It is an active, restless, and courageous bird, and will even attack the turkey, although so much above its size. The Guinea fowls assimilate perfectly with the common species, in habits and in kinds of food; but have this peculiarity, that the cocks and hens are so nearly alike, it is difficult to distinguish them. They have also a peculiar gait and cry, or chuckling. The head is covered with a kind of casque, with

wattles under the bill, and the whole plumage is either black or dark grey, speckled with regular and uniform white spots. The pintada is generally supposed to be a native of Guinea, whence its additional name; but it is in equal plenty in America. In those countries it perches on trees, and, in the wild state, builds its nest in the holes of the palm-tree. It is gregarious, and often found in large flocks.

The Swan.

THE SWAN. Exclusive of ornament, the chief use of the swan is to clear pieces of water from weeds, a service which has been effected lately by swans, over a considerable breadth of water, at the residence of a nobleman, in the course of a year or two; but they are generally reputed great destroyers of the young fry of fish.

The antiquity of this delicate and stately bird, the silent swan, is conspicuous in the pages of history and of poetry. The prototype of the domesticated breed has been probably lost in the lapse of time, since the wild swans of all countries differ essentially both in plumage and organic structure, from the tame. The longevity of the swan seems to equal, if

not exceed, that of any other animal, as it is said to live three centuries, a fact, which it seems strange, and is to be regretted, has not been correctly ascertained in some of our great families of old, so extremely attached to this bird. They are chiefly to be found upon the Thames, and probably also, as in former days, on the inlet of the sea, near Abbotsbury, Dorset, and in the river Trent. Their flesh is no longer in request as food, with the exception, perhaps, that formerly cygnets, or young swans, were fattened at Norwich for the Christmas feast, and commanded the price of one guinea each.

The swan feeds like the goose, and has the same familiarity with its keepers, kindly and eagerly receiving bread which is offered, although it is a bird of courage equal to its apparent pride, and both the cock and hen are extremely dangerous to approach during incubation, or whilst their brood is young, as they have sufficient muscular force to break a man's arm with a stroke of their wing. They both labour hard in forming a nest of water plants, long grass, and sticks, generally in some retired part or inlet of the bank of the stream, or piece of water on which they are kept. The hen begins to lay in February,

producing an egg every other day, until she has deposited seven or eight, on which she sits six weeks, although Buffon says it is nearly two months before the young are excluded. Swans' eggs are much larger than those of a goose, white, and with a hard, and sometimes tuberos shell. The cygnets are ash-coloured when they first quit the shell, and for some months after; indeed, they do not change their colour, nor begin to moult their plumage, until twelve months old, nor assume their perfect glossy whiteness, until advanced in their second year.

The CYGNOIDES from Guinea, commonly called the SWAN-GOOSE, or the MUSCOVY-GOOSE, a sort of middle species between the swan and the goose, is sufficiently plentiful in Britain, and unites so well with the common goose, according to report, as to cause little or no perceptible difference in the progeny. They are distinguished by their erect gait, and the screaming which they continue during almost the whole day, without any obvious incitement.

SECTION V.

On breeding and rearing Chickens—The necessary Yards and Buildings.

It has been already observed, that the warmest and driest soils are best adapted to the breeding and rearing of gallinaceous fowls more particularly chickens; thence the greatest success, attended with the least trouble may be expected on such, and far greater precaution and expense will be required on those of an opposite description. Of these last, the wet and boggy are the most injurious, since, however ill affected fowls are by cold, they endure it still better than moisture, whence they are found to succeed well upon dry land, even in the severe climate of the north. The counties of England most productive in poultry, are NORFOLK, SURREY, SUSSEX, HERTS, DEVON, and SOMERSETSHIRE. The largest stock of poultry which I ever saw upon an English farm, was upon one of two or three hundred acres in Herts, many years since, amounting

it appeared to many hundred head. It was dry and shingly land, like the sea beach, and I found on enquiry, that scarcely any care was taken of the breeding stock, or shelter afforded them, yet they multiplied in a most extraordinary degree, and preserved a constant state of good health. Upon a boggy or clayey soil, under such circumstances, they would have died like rotten sheep. In short, land proper for sheep, is generally also adapted to the successful keeping of poultry and rabbits.

But as the rearing of both is necessary, upon soils and in situations of every description, it will be most to the purpose to point out those precautions which must be recurred to, in order to ensure success upon the least favourable. Of such, then, artificial, or made ground, cannot be dispensed with, for a poultry-yard, where rearing is made an object upon any considerable scale; since upon damp and boggy soils, not only will the greater part of the broods be annually subject to disease and mortality, but the cocks and hens themselves will be frequently affected, to the great impediment of the business of the breeding season. Where it is not held worth while to make any extraordinary accommodations for poultry, and the risk taken, enough may

yet be preserved for family convenience and to repay the trifling expense. But no considerable stock can be kept, far less any profit made upon it, upon an unfavourable soil, independently of attention to needful local conveniences.

Whether or not the poultry be suffered to range at large, and particularly to take the benefit of the farm-yard, a separate and well-fenced yard or court must be pitched upon. The foundation should be laid with chalk, or bricklayer's rubbish, the surface to consist of sandy gravel, considerable plots of it being sown with common trefoil, or wild clover, with a mixture of burnet, spurry, or star-grass, which last two species are particularly salubrious to poultry. The surface must be so sloped and drained as to avoid all stagnant moisture, most destructive to young chickens. The fences must be lofty, well secured at the bottom, that the smallest chicken cannot find a passage through, and the whole yard perfectly sheltered, from the north-west to the south-east. Various beds, or heaps of sifted ashes, or very dry sand, should be always ready, in which the hens may exercise that propensity, so delightful and salutary to them, of rolling or bathing themselves. This is effectual in

cleansing their feathers and skin from vermin and impurities, promotes the cuticular excretion, and is materially instrumental in preserving their health.

The poultry-houses within the court, if there be a choice, should have a southern aspect, at any rate, should be well defended from cold winds and the blowing in of rain or sleet. If the number of the stock be considerable. The houses had far better be small and detached, both for health and safety sake, and especially they should be absolutely impenetrable to vermin of every description. Should these houses abut upon a stable, brewhouse, or any conductor of warmth, it will be so much the more comfortable and salutary to the poultry.

The form and conveniences of the poultry-houses are these—the bottom or floor should consist of well-rammed chalk or earth, similar to the court-yard, that its surface being smooth, may present no impediment to being swept perfectly clean. For health's sake, the roof should be lofty; the perches will be then more out of the reach of vermin, should any accidentally break in: and there should only be one long and level range of perches, because, when these are placed one above another, the fowls dung upon each other: convenient steps

driven into the walls, will render easy the ascent of the poultry to their perches ; but care must be taken that the mistake be not made of placing these steps immediately one over the other, but in such wise, that they can jump from one to the other.

Boxes, of which every carpenter knows the form, are to be arranged round the walls, and it is proper to have a sufficient number, the hens being apt to dispute possession, and sit one upon another ; the steps will lead equally to these as to the perches. The board, or step at the entrance, to be of sufficient height to prevent the eggs from rolling out. Provision of a few railed doors may be made, for occasional use, to be hung before the entrance, in order to prevent other hens from intruding to lay their eggs upon these which sit, a habit to which some are much addicted, and by which a brood is often injured. The common deep square boxes, uncovered at top, are extremely improper, because that form obliges the hen to jump down upon her eggs ; whereas for safety, she should descend upon them from a very small height, or in a manner walk in upon them. The same objection lies against hampers, with the additional one of the wicker work admitting the cold, in variable weather,

n winter or early spring sittings. It ought to be noted likewise, that many breeders prefer to have all their nests upon the ground, on account of the danger of chickens falling from those which are placed above. In this respect, persons will be best guided by their own experience.

Turkeys, being roosting fowls, may be kept in the yard of which we speak, either in a separate house, or their boxes, for laying or sitting, may be placed on the ground of the common houses; which last method, perhaps, is objectionable, since turkeys and common fowls might not roost quietly together. In the common way, indeed, poultry of all kinds are associated in a common house, the cocks and hens aloft, and the ducks, geese, and turkeys upon the ground floor. Or, upon an extensive scale, all the domestic poultry may be contained within the inclosure, the circular form for which would be most comprehensive and advantageous, including a piece of water, with laying houses upon its banks, for the aquatic fowls, and dove cotes for breeding pigeons. Some shutters may open to the morning sun, for air, and particularly for the benefit of the sitting hens.

Precautions.

All the above arrangements, the best concerted plan, and the most valuable stock, will little avail the proprietor, or rather turn to his great mortification and disappointment, without a certain precaution, of more consequence than all others—a defence against MIDNIGHT THIEVES. Not merely a lock, or a bar, or a mere trifling apology for security, but such an ample safeguard, that a man who values his property, may lay his head upon his pillow with confidence. I speak feelingly on this part of the subject, having three or four times in my life, been robbed in a single night, of the greater part of most valuable stocks of poultry, the breed and excellence of which it took me several seasons to recover. In the first place, these small buildings should be made substantial, for on one occasion, my locks being good, the thieves made their way by wrenching open an angle of the building. In addition to substantial locks and hinges, bells hung upon the inside of the doors, or upon any part liable to be shaken, are good precautions, since the noise may deter the thieves, even if it fail to alarm the family. But the most certain

security is that kind of vermin cur generally kept by country labourers. Several such should be enkennelled in the poultry court, and taught to bark, being equally useful against robbers and vermin. Nothing can charm and quiet the tongues of real good *latratores*, or barkers, and more particularly when several of them are together.

A plan like the above will obviously require the exclusive services of one or more ATTENDANTS, according to its extent. My poultry, rabbits, and bees, formerly were well attended by an aged labourer, with the occasional assistance of his wife; and the meritorious couple thus made an easy and comfortable living after a life of severe labour, a circumstance to me, the source of heartfelt satisfaction. The sale of our surplus of this species of live stock, besides repaying all expenses, and exclusive of a most abundant and comfortable supply for the household and for occasional presents, rendered an annual profit by no means contemptible. We disposed of the surplus, for the greater part, to a higgler in the vicinity, who allowed us a certain advance upon his common price, in consideration of the superior goodness and condition of the stock.

SECTION VI.

Choice and Treatment of Breeding Stock.

GALLINACEOUS FOWLS. By a reference to the THIRD Section, which describes the qualities of each variety of this species, a choice may be made of the most suitable to the situation or fancy of the proposed breeder. A breeding stock, of the common kind, is easily procurable, either in town or country, either from the markets or individuals; particular and fancy breeds must either be sought in those parts where they are customarily bred, or at the shops of the London dealers.

It should be a general rule to breed from YOUNG STOCK; a two year old cock, or stag, and pullets in their second year. Pullets in their first year, if early birds, will indeed, probably, lay as many eggs as ever after, but the eggs are small, and such young hens are unsteady sitters. Hens are in their prime at three years of age, and decline after

five, whence, generally, it is not advantageous to keep them beyond that period, with the exception of those of capital qualifications. Hens with a large comb, or which crow like the cock, are generally deemed inferior; but I have had hens with large rose combs, and also crows, which were upon an equality with the rest of the stock. Yellow-legged fowls are often of a tender constitution, and always inferior in the quality of their flesh, which is of a loose flabby texture and ordinary flavour.

The HEALTH of fowls is observable in the fresh and florid colour of the comb, and the brightness and dryness of the eyes, the nostrils being free from any discharge, and the healthy gloss of the plumage. The most useful cock is generally a bold, active, and savage bird, cruel and destructive, in his fits of passion, if not well watched, to his hens, and even to his own offspring. Hens above the common size of their respective varieties, are by no means preferable either as layers or setters. The indications of OLD AGE are paleness of the comb and gills, dulness of colour, and a sort of downy stiffness in the feathers, and length and size of talons, the scales upon the legs becoming large and prominent.

NUMBER of hens to one cock, four to six, the latter being the extreme number, with a view of making the utmost advantage. Ten and even twelve hens have been formerly allowed to one cock, but the produce of eggs and chickens under such an arrangement will seldom equal that to be obtained from the smaller number of hens. Every one is aware that the spring is the best season to commence breeding with poultry, and in truth it scarcely matters how early presupposing the best food, accommodation, and attendance, under which hens may be suffered to sit in January; but the attempt to rear winter chickens in this climate, even in a carpeted room and with a constant fire, would in all probability be found abortive. I have repeatedly made the experiment with some scores, without being able to preserve an individual through the winter, and nearly the same has resulted with respect to pigs.

The conduct of the cock towards his hens should be early and constantly attended to, as it is a common occurrence for him to conceive an antipathy to one or more particular individuals; should this continue, the obnoxious one should be removed, since nothing but misery can ensue to the unhappy and persecuted

bird, which will be harassed and chased about, and unless when hiding and moping in corners, she will be always liable to be torn and maimed; and various examples have occurred of a hen, under these circumstances, being instantly struck dead by the cock. Such a hen being removed, and replaced by a STRANGER, care should be taken for the first week or two, that she be not worried or injured by the other hens.

A place of refuge should be provided for hens or chicks in this unfortunate predicament. Whilst the young feathers are growing after moulting, poultry are extremely apt to peck and wound each other, retarding their recovery.

The CHANGE of a cock, from death, or accident, is always attended with interruption and delay, as it may be some considerable time before the hens will associate kindly with their new partner: and further, a new cock may prove dull and inactive from the change, however good in nature. This frequently happens with cocks of the superior breeds, purchased from the London dealers, in whose coops they have been kept in such a high state of temperature, that they are unable to endure the open air of the country, unless in the summer

season. Such being removed in autumn, winter, or early spring, if immediately turned abroad with hens, are liable to become *aguish*, torpid, and totally useless, perhaps, in the end, turning roopy or glandered. The only method of safety in this case, is to keep such a cock in the house, upon the best and most nourishing food, turning the hens to him several times in the day, and permitting him to be abroad an hour or so, the weather being fine, until in a few weeks he shall be accustomed to the air.

In making the NESTS, short and soft straw is to be preferred, because the straw being long, the hen, on leaving her nest, will be liable to draw it out with her claws, and with it the eggs. The hen, it is ascertained, will breed and lay eggs without the company of a cock; of course, such eggs are barren. I confined a hen with a pheasant cock, which was never observed to attend her; she laid twenty-nine eggs, all which proved barren. It may be said that she had previously associated with a cock, but that the attentions of one were also subsequently necessary, to render the eggs perfect and prolific; such fact, nevertheless, does not negative the other, of a hen's breeding eggs entirely independent of the male, as is confirmed by the

circumstance of parrots and other birds in cages, laying eggs without the possibility of a cock approaching them. According to Buffon, a hen being properly attended by the cock for a few days, should she then be separated from him, the eggs laid by her during a month thereafter, would be fruitful.

EGGS for SETTING should never exceed the age of a month, the newer to be preferred, as nearly of a size as possible, and of the full middle size; void of the circular flaw which indicates the double yolk, generally unproductive, nor should there be any roughness or cracks in the shells. NUMBER of eggs, according to the size of the hen, from nine to fifteen, an odd number being preferable, on the supposition of their lying more close. The eggs to be marked with a pen and ink, and examined when the hen leaves her nest, in order to detect any fresh ones which she may have laid, and which should be immediately taken from her, as they, if at all, would be hatched too late for the brood. It is taken for granted, the box and nest have been made perfectly clean for the reception of the hen, and that a new nest has not been sluggishly and sluttishly thrown upon an old one, from the filth of which vermin are propagated, to the great an-

noyance of the hen, and prevention of her steady sitting.

EGGS BROKEN in the nest should be cleared away the instant of discovery, and the remaining washed with warm water, and quickly replaced, lest they adhere to the hen, and be drawn out of the nest: if necessary, the hen's feathers may also be washed, but always with warm water.

With respect to the CAPRICIOUSNESS of some hens, in the article of SITTING, it is a risk which must be left to the judgment of the attendant, who has to determine whether or not the hen which appears desirous of sitting, may be safely trusted with eggs. Leaving a number of eggs in the nest is an enticement. Very frequently, a hen will cluck, and appear hot for incubation, yet after sitting over her eggs a sufficient number of hours to addle them, will then desert them: and, probably, in the course of a few days will be taken with another fit of incubation.

Much useless cruelty is too often exercised, to PREVENT the hen from SITTING, when eggs, rather than chickens, are in request; such, for example, as immersing her head, or whole body in water, which I have witnessed with regret, the hen, as soon as dry, running to her

nest, although the dipping has been repeated several days following. But, granting nature could be thus put out of her course, it is not probable that eggs would be obtained earlier than by suffering the hen to sit, since the improper treatment, and the disappointment combined, are nearly an equal impediment both to laying and sitting.

I am sorry to see a late useful and well-written publication disgraced by barbarities similar to those above described. The author, unreflectingly, without doubt, recommends to thrust a feather through the hen's nostrils, in order to prevent her from sitting; and to give her half a glass of gin, then swing her round until seemingly dead, and confine her in a pot, during a day or two, leaving her only a small breathing hole, to force her to sit! It is full time that these and a hundred other such utterly useless and barbarous follies of former days, practised upon various animals, should be dismissed with the contempt they merit. The pamphlet alluded to, is the *Epicure*, by Thomas Young, a publication replete with good things, on the interesting subjects of eating, wines, spirits, beer, cider, planting, &c. It is written with *haut goût*.

Every succeeding year after the third, the

hen continues to MOULT later in the season, and laying fewer or no eggs during the moulting period, which is sometimes protracted to two or three months. It should seem that old hens are seldom to be depended upon for eggs in the winter, such being scarcely full of feather until Christmas; and then, probably, may not begin to lay till April, producing at last, not more than twenty or thirty eggs. In general, it is most profitable to dispose of hens whilst they are yet eatable, or saleable for that purpose, which is in the spring of the third year. Nor do delicate white hens lay so many eggs in the cold season, as the more hardy coloured varieties, requiring warmth and shelter, particularly by night. MOULTING, or the casting and renewal of feathers, lasts with its effects from one to three months, according to the age and strength of the bird. Whilst under this natural course, poultry are unfit for the table, as well as for breeding. It is the same with respect to young poultry, whilst shedding their feathers in the spring. The regular moulting of full-grown fowls begins in the autumn.

Attention during Incubation.

There is this DISTINCTION in the hen: in

some, the desire of sitting or incubation is predominant, which they will repeat to the fifth or sixth time in the year, to their emaciation or almost destruction: in others, the desire is so slight, that they will probably sit but twice, or even once in the season, and then not steadily. It is for the skilful breeder to take advantage of this variation of quality, the one kind furnishing plenty of eggs for the other to sit upon.

It is proper to place CORN AND WATER beside the sitting hen, whenever it may appear necessary, withdrawing them as soon as she is satisfied, not only to encourage steadiness of incubation, but to support the constitutions of those in which the natural excitement is so powerful, that they will remain several successive days upon the nest, at the risk of famishing. I have had instances of hens of this description fainting outright, and appearing as dead, on their final leaving the nest with the chickens; in a state of total emaciation, having, probably, not eaten or drank more than once in three or four days, during the TERM of her incubation, TWENTY-ONE DAYS. The plan of feeding on the nest, should be invariably pursued with all frequent sitters.

SECTION VII.

Hatching of the Brood.

THIS must be watched on the expiration of the term, in which the state of the weather, warm or cold, may make some hours difference. Nature, as Reaumur long since observed, has committed to the chicken itself, the task of breaking its way through the shell, the hen being totally uninstructed and unqualified on that point; for, indeed, any forcible strokes with her beak, might have the effect of wounding the chicken, whilst it broke the shell. The only use of her bill, generally, in this case, is to turn, or remove the eggs, defend them, or cast out the broken shells. The chicken in perfect health and unimpeded, suddenly, at nature's impulse, performs the part of breaking its prison with wonderful strength and energy, indicative of future activity, considering the quiescent state, rolled up like a ball, in which it has lain from the time of its form being complete. ITS FORM AND POSITION IN THE SHELL—the

neck curves or slopes towards the belly, on about the middle of which the head is placed; the bill under the right wing, like a bird asleep; the feet are gathered up beneath the belly, like those of fowls trussed for the spit: the claws reversed, almost touch the head from their convexity. The fore-part of the chicken is generally placed towards the biggest end of the egg, adapted by nature to that purpose; the whole body is surrounded by a membrane of considerable strength and thickness, confining him in a position apparently the most unfavourable to the motions necessary to his emancipation: it is nevertheless without changing his attitude that he performs his seemingly most difficult task; repeated strokes with his little bill, which may often be heard, break the shell of the egg, at the same time tearing the solid membrane, in which he is enveloped, and which resists his struggles, full as much as the hard but brittle shell.

Nor is the head at all at liberty, or released from the wing, during the struggle, the comparison in that respect, with a sleeping bird not coming up fully to the point, since the head of the chicken in the egg, reaches farther under the wing, and the bill protrudes

towards the back. The head, although in this confined state, by moving alternately backward and forward, and the reverse, or more exactly from the belly towards the back, and from the back towards the belly, reaches and strikes the shell, more or less roughly, according to the quickness of its motion: whilst in action, it is in some degree guided by the wing and the body, which retain and prevent it from leaving its place. The head is very heavy and large, with respect to the bulk of the body, making together with the neck, a weight so considerable, that the chicken is unable to support it for some time after its birth. On the other hand, the manner in which all the parts are disposed, whilst yet in the egg, and in the form of a ball, renders the support of that weight of the neck and head, perfectly easy to the chicken: for in whatever position the egg may be, the head of the chicken is supported either by the body or by the wing, or by both united: in fine, the force of the blows against the shell by the beak, is powerful in proportion to the bulk of the head. The mother's affection for her brood is always observed to be intensely increased, when she first hears the voice of the chicks through the shells, and the strokes of their little bills against them.

All chickens do not dispatch the important task in equal time. Some are able to disencumber themselves of the shell, in the course of an hour from the commencement of the operation; others take two or three hours; and generally it may be looked upon as half a day's work: in case of natural or accidental debility, the period may be extended to twenty-four, or even forty-eight hours, in which case, however, there is seldom much success in the hatching. Here skilful assistance is wanted from the attendant, which very few possess. Reaumur, the greater part of whose observations, such, I mean, as I have found leisure to attend to, appear to me correct, says the women of most countries in his time (1747) were in the habit of dipping the eggs in warm water, and suffering them to remain in it a short time, on the day of hatching, from the presumption of rendering the shell more tender and easy to be penetrated by the bills of the chickens. This, however, is a useless, perhaps injurious labour, since the shell of a boiled egg does not prove sensibly less hard; and granting it did, would soon reassume its primitive hardness, from exposure to the air and evaporation.

ASSISTANCE IN HATCHING must not be attempted prematurely, and thence unnecessarily, but only in the case of the chick being plainly unable to extricate itself: so indeed, an addition may probably be made to the brood, as great numbers are always lost in this way. The chick makes a circular fracture of the big end of the egg, and a section of about one third of the length of the shell being separated, delivers the prisoner, provided there be no obstruction from adhesion of the body to the membrane which lines the shell. Between the body of the chicken and the membrane, there remains a viscous fluid, the white of the egg thickened by the intense heat of incubation, until it becomes a real glue. When this happens, the feathers stick fast to the shell, and the chick remains confined, and must perish unless released.

The METHOD of assistance is, to take the egg in hand, and dipping the finger or a piece of linen, in warm water, apply it to the fastened parts, until they are loosened, by the gluey substance being dissolved and separated from the feathers; the chick then being returned to the nest, will extricate itself, a mode generally to be observed, since

violence used would often be fatal. Nevertheless, breaking the shell may sometimes be necessary, and tearing with the fingers as gently as may be, the membrane from the feathers, which are still to be moistened as above, to facilitate the operation. Small points of scissars may be useful, and when there is much resistance and apparent pain to the bird, the process must be conducted in the gentlest manner, and the shell separated into a number of small pieces. The signs of a need of assistance are, the egg being partly pecked, and the efforts of the chicken discontinued for five or six hours. In commencement, the shell may be broken cautiously, by striking it with the end of a key, the rotten egg is known immediately by the motion of the contained fluid, and previous unsteady incubation.

WEAKNESS from cold may disable the chicken from commencing the operation of pecking the shell, which must then be artificially performed, with a circular fracture, such as is made by the bird itself. Pullets are occasionally liable to cause this defect. We have had but little success in this case, the chickens after delivery, seldom succeeding; but the following quotation from De Reaumur will be fully explanatory.

“ This assistance, which is so important to many chickens, might prove fatal to others; for which reason I would advise the reader not to attempt it in too great a hurry. My opinion is, the facility of coming out of their shells ought not to be procured to any but those which have been nearly four and twenty hours together without getting forward in their work. There are chickens as I have already observed, which shew too great an impatience to peck their shells, and do it before the yolk is entirely got into their body: it would prove fatal to those, were they enabled to come out of their shell a few hours after they have pecked it, although they would be never the worse for it afterwards, IF NO YOLK WERE LEFT OUT OF THEIR *body*, at the instant of their coming out of the shell. However, it is generally better to let the chicken come out of the shell of its own accord: for in that case, he is hatched only when his limbs have become sufficiently strong, and when they have assumed in the shell a consistence and vigour, which they would not be so sure to acquire, if they were exposed to the open air.

“ I have often found, both among the chickens which were hatched of their own accord,

and those which I have assisted, some that, notwithstanding the perfect consolidation of the place, through which the yolk had been introduced into their body, had nevertheless still without it, portions of intestines, some longer, some shorter; one might think that these portions had not been inclosed in the capacity of the belly at the same time when the rest was; but it is no less probable that all this is the consequence of the efforts the chicken had made towards being hatched, and that they had brought on him a rupture, which is commonly fatal in a few days."

The chickens **FIRST HATCHED** to be taken from the hen, lest she be tempted to leave her task unfinished. Those removed may be secured in a basket of wool or soft hay, and kept in a moderate heat, if the weather be cold, near the fire. They will require no food for many hours, even four and twenty, should it be necessary to keep them so long from the hen. The whole brood being hatched the hen is to be placed under a coop abroad, upon a dry spot, and, if possible, not within the reach of another hen, since the chickens will mix, and the hens are apt to maim or destroy those which do not belong to them. Nor should they be placed near numbers of young fowls,

which are likely to crush young chicks under their feet, being always eager for the chicken's meat.

The FIRST FOOD, split grits, afterwards tail wheat; all watery food, soaked bread, or potatoes, improper. Eggs boiled hard, or curd chopped small, much approved as first food. Their water should be pure and often renewed, and there are convenient pans made in such forms, that the chickens may drink without getting into the water, which often, by wetting their feet and feathers, numbs and injures them; a basin whelmed in the middle of a pan of water, will answer the end, the water running round it. Generally, and dependent on situation, and the disposition of the hen, there is no necessity for cooping the brood beyond two or three days, but they may be confined as occasion requires or suffered to range, as they are much benefited by the scratching and foraging of the hen. They must not be let out too early in the morning, or whilst the dew remains upon the ground, far less be suffered to range over the wet grass, one common and fatal cause of disease. Another caution is of the utmost consequence, to guard them watchfully against sudden unfavourable changes of the weather, more particularly if

attended with rain. Nearly all the diseases of gallinaceous fowls arise from cold moisture.

For the period of the chickens *QUITTING* the hen, there is no general rule, the most certain is, when the hen begins to roost, leaving them; if sufficiently forward, they will follow her; if otherwise, they should be secured in a proper place, the time having arrived when they are to associate with the young poultry, as nearly of their own age and size as possible, since the larger are apt to overrun and drive from their food the younger broods.

SECTION VIII.

Hatching Eggs by artificial Heat.

DURING ages, beyond the power of historical records to enumerate, the Egyptian people have been in the practice of hatching the eggs of all kinds of poultry, more especially the gallinaceous, by means of artificial heat; means the most obvious, when attended with success, of raising the greatest abundance of that species of provision for public use. The philosophers of the French Academy, ever on the watch for the advancement of scientific or practical improvement, in the early, and towards the middle part of the last century, eagerly laid hold of the report of their travellers, and made experiments in their own country of this Egyptian practice. The experiment was made on a considerable scale, under the royal patronage, and M. DE REAUMUR, a name well known in the annals of science, did not think it beneath the dignity of his name and acquirements to undertake the practical and superintending part, performing it with

a minuteness of attention, which may well excite jealousy in the breasts of the most thorough-paced housewives in Christendom. He afterwards presented to his country, and to the world at large, the successful and important results, in a comely octavo, adorned with fourteen explanatory and useful folding plates, and containing nearly five hundred closely-printed pages. This curious work was translated into English, with greater fidelity than elegance, in the year 1750. Nor was the attempt of De Reaumur at the multiplication of chickens, the only one in France; ladies of high quality, and reverend inmates of the convent, patriotically bestowed their industry and attention on the same pursuit with considerable success. Not only in France, but at Florence, and even in Poland, similar attempts had been made. The project, however, from whatever cause, seems in a very few years to have become extinct in France, and has since probably been confined to Egypt, its native soil.

Diodorus Siculus, *Aristotle*, and other ancient writers, advert to the Egyptian practice of hatching eggs, and the latter explains the process of performing the same operation by the heat of dung. The ancients, indeed, were

well aware of the practicability of eliciting animal life from the egg, independently of the incubation of the hen, and *Pliny* has recorded the success of *Livia*, in hatching a chicken in her bosom, an act of patient curiosity which has been paralleled by several French ladies, who have, in the same way, proved themselves the mothers of gold-finches and canary birds. *Pliny* says also, *sed inventum, ut ova in calido loco, imposita paleis, igne modico foverentur, homine versante pariter die ac nocte, et statuto die illinc irrumperet fœtus*. In English, it had been discovered in his time, that eggs placed on straw in a moderate heat, and turned day and night by an attendant, would be hatched within the limited period of incubation.

This art, however, is not to be understood as ever having been of general notoriety even in Egypt. On the contrary, the knowledge of it is there confined to a single village, named *Berme*, situate in the *Delta*, within twenty leagues of *Grand Cairo*, and to a few adjoining places. The inhabitants teach the secret to their children, but conceal it from strangers. When the season for hatching approaches, which is the commencement of autumn, these *Bermians* disperse themselves over the country, each

of them taking upon himself the management of an oven, in the Egyptian language called *mamal*. In the construction of these ovens, which, however, discovers a considerable degree of ingenuity, there can be no secret, since they are open to all, foreigners as well as natives : the peculiar skill of the *Bermeans*, consists in the arrangement, gradual warming of the eggs, and successful developement of the young broods.

The *Mamals* or Ovens of Egypt, of which De Reaumur, in a fit of real enthusiasm, says that country ought to be more proud than of her pyramids, are scarcely above nine feet in height, but they have an extent in length and breadth which renders them remarkable, and yet they are more so in their internal structure. The centre of the building is a very narrow gallery, usually about the width of three feet, extending from one end of the building to the other, the height of which is from eight to nine feet ; the structure for the most part of brick. The entrance into the oven is through the gallery, which commands the whole extent of it, and facilitates the several operations that are necessary to keep the eggs to the proper degree of heat. The oven has a door, not very wide, and only as

high as it is broad: this door, and many others in use in the *mamals*, are commonly no more than round holes.

The GALLERY is a corridor, with this difference from our common corridors, which have only one row of rooms, whereas that of the *mamal* has always two rows of them on both sides; namely, one on the ground-floor and another above. Every one upon the ground-floor, has one above, perfectly equal, both in length and breadth. The rooms of each row on the ground-floor, are all regular and equal in length, breadth, and height. *Reaumur* observes, we know of no other rooms in the world so low as these, being only three feet in height. Their breadth, which is in the same direction with the length of the gallery, is four or five feet; that they are very narrow in proportion to their length, which is twelve or fifteen feet.

Every one of these rooms has its door, or round aperture, about a foot and a half in diameter, opening into the gallery, the hole being wide enough for a man to creep through. All the eggs to be hatched, are first ranged in these rooms. Father *Sicard* informs us, that four or five thousand eggs are put into each of them. These are the real ovens, so that

the whole edifice, which is denominated a chicken-oven, is an assemblage of many ovens set together, side by side, opposite, and over each other; and in the course of the process, a part of the eggs are warmed in the upper rooms, after having been previously in the lower.

There is some discrepancy in the accounts of authors as to the number of rooms, and the quantity of eggs hatched at a time; it might arise, however, from different local customs. Father *Sicard* gives but four or five rooms to each row on the ground-floor; *Granger* insists on seven: *Monconys*, ten or twelve to each; whilst *Thievenot* asserts, there are no more than three. They were all eye-witnesses; and according to the report of one, only forty or fifty thousand eggs were hatched at once, whilst another extends the number to eighty thousand. The eggs are spread on mats, flocks or flax, in each room upon the ground-floor, where they contract their first and general warmth, during a certain number of days.

The UPPER ROOMS, or those of one story high, have each of them fire-places, the fire of which warms the eggs in the corresponding inferior rooms: the floor which separates

each of these from its inferior room, has a large hole, or aperture in it through which the heat is communicated to the lower room. The floor which separates the upper room from that beneath, has, on each side, a gutter or channel, continued its whole length; in these two channels the fire is lighted. Granger observed two more gutters, one at each end of the room; they were six inches wide and two deep.

Every upper room has, beside the large aperture, through which it has its communication with the lower ones, two other holes—a small one in the arch which supports it in lieu of a ceiling, and another in the wall, that separates it from the gallery. This last serves instead of a door, as the hole placed in the same manner under it, does to the room below; performing also the office of a chimney, the smoke having no other passage, since, during the whole time the fire is burning, they keep the hole in the arch or ceiling of each room close stopped. The smoke by this means, is carried into the gallery, through the door of the upper room, whence it escapes through holes which are made in its roof. They also stop the doors of the under rooms, whilst the fire is lighted, that the air within

may be sooner warmed by the heat communicated from the upper ones. These doors, as they are called, are only as so many holes to be stopped, which it is of importance to do closely and exactly ; thence it is more securely done with wads, or bundles of coarse tow, than with any kind of wood work.

The heat of the air, in the inferior rooms, and consequently that of the eggs, would rise to an excessive degree, were the fire in the gutters incessantly kept up. Father *Sicard* says, they keep it up only an hour in the morning, and an hour at night, and that they style these heatings, the dinner and supper of the chickens : they receive, however, two more meals according to *Monconys* ; that is, a luncheon and afternooning, the fire being lighted four times in a day. This may depend on the temperature of the air, as they have, in Egypt, eggs hatched during several months together ; and as in the hottest countries, all the months which follow one another have not an equal temperature of air, the temperature of some of them requires the fire to be lighted a great number of times ; or that they keep it longer in their ovens than ought to be done, either in the succeeding months, or in those which preceded.

During many days previous to that of the hatching, it would be needless and even dangerous to increase the fire in the oven, because, after a certain number of days the whole extent of the place has acquired a degree of heat, that may be preserved in it many days together, only by using a few easy precautions, notwithstanding the impression of the external air, and that without any sensible diminution, or at least without any which might be hurtful to the chickens. Travellers differ as to the period, at the end of which the fires cease in the ovens; but it seems probable that they are only kept up during the first eight or ten days, the eggs being subsequently sufficiently warm from the temperature already acquired by the stoves. On the day on which they cease to light the fires, part of the eggs of each inferior room are always conveyed into the room above. The eggs had been too much heaped in the former, and it is now time to extend and give them more room. It is a task sufficiently hard for the chick about to be hatched to break and deliver itself from the shell, but it would be impossible for it to lift any additional weight.

The proper number of eggs from each infe-

rior room having been removed into the room above, all the apertures of the rooms and of the gallery are closely and exactly stopped with bungs of tow, excepting perhaps half the apertures in the arches or ceilings of the upper rooms, which are left open in order to procure there a circulation of air. This precaution is sufficient to preserve in the ovens, for many days together, the temperature which has been obtained; which indeed would be the case with ovens upon so considerable a scale in any country, more especially in one so hot as Egypt. The fuel used is the dung of cows or camels, dried and mixed with straw, made into a kind of turfs; in these countries, tanners' bark would answer the purpose, as it does that of our hot-houses for fruit. Wood and coals, unless indeed previously charred, would make too quick a fire.

Sicard gives an idea of the immense quantity of chickens hatched in his time, in Egypt. The number of these ovens, dispersed in the several cantons of the country, was no less than three hundred and eighty-six. The business seems to be monopolized by the *Agas* or government, and therefore cannot be varied in extent, but by their permission. Each *mamal* has one managing *Bermean*. These

managers cannot absent themselves from duty but with leave obtained from the *Aga of Berme*, never obtained but at the expense of from six to ten crowns. The *Aga* constantly keeps a register of these fees, which is to him a sort of rent-roll.

The above number of ovens is kept at work in Egypt annually, during four to six months, allowing more time than is necessary to hatch eight successive broods of chickens, ducks, and turkeys, making on the whole, yearly, three thousand and eighty-eight broods. The number in each hatching is not always equal, from the occasional difficulty of obtaining a sufficient number of eggs, which may be stated at a medium between the two extremes of forty and eighty thousand to each oven. The *Bermean* contracts to return, in a living brood to his employer, two-thirds of the number of eggs set in the ovens: all above being his own perquisite, in addition to his salary for the season, which is thirty to forty crowns exclusive of his board. According to report, the crop of poultry thus artificially raised in Egypt, was seldom if ever below that ratio, making the enormous annual amount of ninety-two millions six hundred and forty thousand. It is obvious that the apparent

grand difficulty of obtaining a sufficient number of eggs, must subsist chiefly, or entirely, in the fancy of such an undertaking, and that its progress must infinitely extend the supply, as has been the case in Egypt, where the breeding stock has been so multiplied, and where, in consequence, the commodity is so cheap, from its superabundance, that in the time of *Father Sicard*, a thousand eggs were sold for thirty or forty *medins*, making three or four shillings English money. Indeed, the chickens were not sold from the stoves by tale, but by measure ; according to *De Reaumur*, by the bushel ! And it appears from travellers of the present day, to be the custom in Egypt, to purchase chickens by the basket full.

Thus much may suffice, as a general outline of Egyptian practice, in an art not likely to be pursued in any part of Europe, least of all in Britain, for reasons already assigned. Exclusive of the facts, that we are not a poultry-eating people, and that we do not consume so many eggs, as are required in Roman Catholic countries, ours is not a country, from something peculiar in its economical constitution, which can long bear superabundance and cheapness ; a hint much at the

service of our political economists. With respect to the date of the above Egyptian details, as drawn from old authors, some of whom, perhaps, visited that country more than a century since, it may be remarked, that the orientals scarcely ever change their customs, and that in Egypt and Arabia, the manners and habits of the days of the patriarchs are still generally prevalent: thence it is probable, that the same system of hatching fowls, which was common in the days of Father Sicard, prevails at the present time; nor have I met an account of any material change in the books of our more modern travellers.

De Reaumur, however, in the true style of a projector, thus reasons in support of his favourite scheme, which previously had been honoured with even a still more powerful advocate, in the Regent *Duc d'Orleans*. The former demands,—“ Why do we not try, then, to make up by art, for the scarcity of what the hens are disposed to give us! The example of the Egyptians, who are so much the better for not depending upon hens to have chickens, seems to point out to us what we ought to do. Notwithstanding the expense of building the ovens, and that of the

people employed to look after them, their broods are not by much so expensive as ours : for it would be a very great mistake, to think that it costs us nothing to make our hens sit ; a hen is employed in sitting on her eggs, and in the care of her chicks that come out of them, for two months and a half at least, and sometimes for three, or three and a half of the months that are most favourable for laying, and during which she might have laid above thirty eggs at a medium. To have fifteen eggs sat on, which is the number commonly given to hens in France, we must of course loose thirty others : by which means, the price of each of those which are put under the hen, becomes that of three eggs. This is one of those things that may seem to be small, or almost unworthy of our notice, when considered singly ; but which appear of some importance, when we reflect on the prodigious number of times they are repeated. It would cost much more than one hundred thousand eggs, to have only fifty thousand of them sat on by hens, that is to say, above two thousand five hundred livres, in those countries where eggs are sold for six sous a dozen. It would not cost us nearly so much, to have the same

number of eggs, warmed after the Egyptian manner; the whole expense, indeed, would be little more than the salary of one or two men, for three weeks or a month at most."

This indefatigable advocate then proceeds to adduce a circumstance, in consequence of which the inhabitants of the European countries, from their greater advance in the conveniences of life, have an advantage, would they deign to make use of it, even over the Egyptians themselves, in the power of multiplying, without additional expense, the process for hatching eggs with common heat. He says, "every oven which has its arch covered over, affords a chicken-stove almost ready made; whence it is easy to judge, that people are actually provided in most countries, with as many chicken-stoves as are necessary to hatch a greater number than there are annually produced in Egypt. 'Tis true the quantity of eggs warmed at a time in one *mamal*, is greater than that which can be warmed in one of our new ovens; but does not the number of those ovens, which are heated frequently enough to serve to hatch chickens, vastly surpass that of the three hundred and eighty-six, which is the whole number of the Egyptian *mamals*? If

nothing was wanted to us but ovens, London or Paris alone, with the suburbs, &c. would enable us annually to hatch more chickens than are hatched all over Egypt. We may without engaging ourselves in a calculation of the number of the ovens, that are employed to feed the inhabitants of those large towns, very confidently affirm, that there are a great many more than three hundred and eighty-six; nor are the ovens of the pastry-cooks to be forgotten. In short, the stoves dependent on them, might serve to warm eggs and hatch chickens all the year round, whereas the Egyptians themselves do not think they can use theirs for any longer time than six months.

“ It cannot then be denied, that we have in our power to hatch such an immense quantity of chickens as would much surpass that which the whole kingdom can consume, by using towards the warming of the eggs a part of the heat of our bakers and pastry-cooks, which has hitherto been absolutely lost. However, we are not to expect that all the people in these trades, will at once fall into the practice; but when some of the most industrious and active of them, shall have used their ovens with success for this purpose, they gradually

will be imitated by others ; and, in time, none among them, but those that are either too idle to be rich, or are overloaded with business, will neglect procuring to themselves an amusement as beneficial even as the most laborious occupation."

In the year 1782, whilst resident in Surrey, *Reaumur's* book first fell into my hands. I had often heard of such a treatise, and being then much attached to breeding poultry, I had a strong desire to make trial of the Egyptian mode of hatching the eggs. I had, in fact, already commenced, and our endeavours were stimulated and amply assisted by the presence of such a guide. We were, however, soon satisfied by a trial upon a very small scale, and can in few words, explain to the reader, both our process, and the reason for its discontinuance.

There are TWO MODES OF HEATING the EGGS ; through the means of fire, or stable-dung ; we made choice of the former. A number of eggs, wrapped in wool, and covered with flannel, in a common wicker bottom sieve or riddle, were suspended over a chaffing-dish of charcoal, in a chimney where was no other fire. The chimney-skreen was constantly kept fast, in order to concentrate

the heat. It was a small chimney, into the funnel of which the wind did not set with any force, at least at that time, and the heat was well retained as in a stove. We had no thermometer, but measured the degree of heat merely by our own feeling, and as we could judge it to correspond with the natural heat imparted by the body of the hen during incubation. *Reaumur* determined the proper degree of heat to be thirty-two degrees by his thermometer. Constant attendance, at least every three or four hours, must obviously be necessary, night and day, to preserve an equality of heat to both sides of the eggs, of which there was only one layer, filling the bottom of the seive, to the number of forty odd. This was effected by turning the eggs, giving each side the equal chance of nearness to the fire, which must be constantly kept to a moderate and equable heat. We made use of all fine and new-laid eggs, but in our first attempt we lost a number, which however were not rotten, but had evidently bred chickens, which perished from an imperfect disposition of the heat. They were most probably of the eggs placed in the circumference, where the heat might be defective, and which we afterwards had the precaution to

change to the centre, where the heat was greatest. Or, with equal probability, the heat might be sometimes too great in the centre, and occasion instant destruction to the nascent being in the shell. As the chickens advance in growth, the covering of flannel should be made lighter, and on the expectation of hatching, it must be reduced to a very thin covering, that nothing may press upon the eggs to impede the efforts of the chickens. We obtained between thirty and forty chickens, from about forty-five eggs, all in good health, two excepted, which being weak, required assistance to be released, and survived only a day or two.

The brood placed in a basket of soft hay, and covered with flannel, were committed to the same chimney, the charcoal still burning. This was continued a day or two, the degree of heat considerably reduced, until they required feeding. Making a noise with the finger nails against a board, upon which the chicks were placed, in imitation of the pecking of the hen mother, first taught them to peck at their meat, and they from natural instinct, followed the noise readily and eagerly. They were soon taught to drink also, but with some difficulty to prevent them,

in their eagerness, from wetting their feet and plumage. It should be here observed, that we had set three hens on the same day we commenced the process by artificial heat, and one of these producing a small number of chicks, we contrived to deceive, and make her foster-mother to a part of those artificially hatched ; and, acting the same part with the other two, we had few more than twenty to bring up by hand.

Here commenced the grand difficulty. The nurse chickens soon became weary of their basket, feeling their natural desire of almost perpetual action, and the want of a mother to lead and brood them. A capon is best calculated for this business, as from size being capable of covering such a number : but much discipline is required to bring the capon to this habit. I have never made trial of the capon for this employ, but am assured that the discipline described by Buffon, namely, plucking the feathers from the breast, and repeatedly irritating the skin with nettles, in order that the pain may impel the bird to take chickens to the part by way of alleviation, is equally futile and unnecessary as it is barbarous ; and, indeed, more probable to enrage him, and endanger the brood. It is

said, feeding the chicks a few times with the capon, attaches it to them ; that some capons will brood them almost immediately, others can never be induced to it by any means. In the mean time, an ARTIFICIAL MOTHER cannot be dispensed with, under which the chickens may brood and shelter.

We made choice of a box, the sides of which we covered with lamb's skin dressed with the wool on, the lid being covered with the same, placed and confined sloping within the box, so that one extremity reached nearly to the bottom, the other gradually ascending : the smallest chicks, by penetrating to the farther end, could nestle their heads and shoulders in the wool, and those which were taller, would find the same convenience in the ascending part of the lid. Such is their mode of nestling under the hen, and which is absolutely necessary to their comfort and even their existence. A curtain of flannel was suspended over the opening of the box.

A WICKER CAGE or COOP, surrounding the above box and artificial mother, which will entirely confine the chickens to its circumference, is a great convenience in bad weather, or for the purpose of separation ; indeed, a coop of that kind for a hen and brood is

often useful. One discovery we made in the attempt at artificial hatching, namely, that young chicks are injured by being placed upon a **BOARDED FLOOR**; it is too cold and chilling for them, the feet and legs appearing swollen, as if from chilblains. Dry earth is their proper floor.

Mr. Young recommends the following plan of an artificial mother, and the experimenter may make his election between the two, or improve on them both at his discretion.

“ Five broods may at once be cherished under an artificial mother. This mother may be framed of a board, ten inches broad, and fifteen inches long, resting on two legs in front, two inches in height, and on two props behind, two inches also in height. The board must be perforated with many small gimblet holes, for the escape of the heated air, and lined with lamb's skin dressed with the wool on, and the woolly side is to come in contact with the chickens.

“ Over three of these mothers a wicker-basket is to be placed, for the protection of the chickens, four feet long, two feet broad, and fourteen inches high, with a lid open, a wooden sliding bottom to draw out for cleaning, and a long narrow trough along

the front, resting on two very low stools, for holding their food. Perches are to be fixed in the basket, for the more advanced to roost on. A flannel curtain is to be placed in front, and at both ends of the mothers, for the chickens to run under, from which they soon learn to push outwards and inwards. These mothers, with the wicker basket over them, are to be placed against a hot wall, at the back of the kitchen fire, or in any other warm situation, where the heat shall not exceed 80 degrees of Fahrenheit.

“ When the chickens are a week old, they are to be carried with the mother to a grass plat for feeding, and kept warm by a tin tube filled with hot water, which will continue sufficiently warm for about three hours, when the hot water is to be renewed. Towards the evening the mothers are to be again placed against the hot wall. Their food, as before observed, is to consist of coarse barley-meal, steamed till quite soft ; steamed potatoes minced quite small, and occasionally pellets of coarse wheaten flour : these articles may be given to them alternately.” This description is certainly superior to mine, in variety of particulars and precision, if not in real use.

It will readily appear why, although we were perfectly satisfied with our success in hatching a considerable number of eggs artificially, we did not yet wish to continue the practice. The fact is, there is no adequate motive in this country, where a quantity of poultry, fully equal, and even superior to the demand, may be raised by the natural means: were it otherwise, there is no doubt but the artificial process might be conducted here with sufficient success, and to the immense multiplication of domestic fowls of every description, an adequate expenditure in houses and attendants being pre-supposed. On a first consideration of the subject, indeed, a great apparent difficulty may present, of obtaining a sufficient quantity of eggs; but the case is parallel, at any rate, to a certain degree, in Egypt, where, notwithstanding, such an obstacle has never impeded the practice. This view is, in all likelihood, appropriate to France equally with England. No person, then, will attempt artificial hatching, but from the motive of mere curiosity, and that motive must indeed be powerful, to carry one through the endless labour and attendance required. A lady, some years since, obtained a pre-

mium of ten guineas from one of the societies, for the plan of multiplying chickens, by causing the hens to sit *CONSTANTLY*, or a great many times in the season, which we had tried without success, many years before. It is, in fact, to undertake the most difficult part of the artificial process, that of bringing up the chickens without hens. Nor would the disappointments be few, in procuring hens which would sit beyond the usual periods, and those so disposed, soon become consumptive and useless from such hard duty. The plan indeed, as a general one, is totally useless. On this head, De Reaumur thus characterizes the hens of his country :

“ So long as we shall depend entirely upon our hens, we must not expect to see the multiplication of the species carried so far as might be wished ; it is not nearly all the hens of a poultry-yard, that are willing every year to sit. In some years, when I have wanted sitting hens for some experiments, I have had the mortification not to find above four such, among fifty or sixty of them : complaints of hens that refuse to sit, are very common in the country (France,) and I think in general, that it seldom happens that the third or even the fourth part of them

are so disposed. Besides this, they are not always willing to sit at those times when we wish they would, which is in part the reason why the early chickens are dear a great while, and why we have not every year a supply of them as early as we wish for it."

Hatching eggs by steam has been, for some time, successfully practised by Mr. J. H. Barlow, jeweller, of Lamb's-Conduit Street, London. His very ingenious apparatus is there exhibited, at one shilling each person. The eggs of foreign and curious fowls and birds, if imported in good preservation, may be so hatched.

EGGS, FEATHERS, &c.

EGGS become desiccated, and in consequence lose great part of their substance and nutritive quality, by keeping, and every body knows the value of a fresh-laid egg. They will retain their moisture and goodness however, three or four months, or more, if the pores of the shell be closed and rendered impervious to the air, by some unctuous application. We generally anoint them with mutton suet melted, and set them on end, wedged close together, in bran, *stratum*

super stratum, the containing box being closely covered. Laid upon the side, the yolk will adhere to the shell. They thus come into use, at the end of a considerable period of time, in a state almost equal to new-laid eggs, for consumption, but ought not to be trusted for incubation, excepting in the case of the imported eggs of rare birds. Another method of preservation has lately been recommended in print. To dip eggs in oil, and pack them in salt. At any rate, they ought not to be deposited on their sides.

FEATHERS OR DOWN intended for use, should be plucked as soon as possible after the bird is dead, and before it is cold, otherwise they are defective in that elasticity which is their most valuable property, and are liable to decay. The bird should, beside, be in good health, and not moulting, for the feathers to be in perfection: and being plucked, and a sufficient number collected, the sooner they are dried upon the oven, the better, since they are else apt to heat and stick together.

The practice of plucking the LIVING FOWL, (see page 35,) if interest must sanction such a custom, should be performed in the most tender and careful manner, and not at or near the time of moulting. The ripe down only

should be taken from each wing of the swan, goose, or duck, and four or five feathers. Lean geese furnish the greatest quantity of down and feathers, and of the best quality; to which also the goodness of their food, and the care bestowed, contribute in a considerable degrec. Geese are sometimes stripped three times in the season, but in the whole affair I speak with entire ignorance of the practice. Strict PRECAUTION is necessary to HOUSE the stripped fowls, for a time sufficient to enable them to endure the air, and by all means to keep them from the water. The down and feathers of ducks, pigeons, and partridges, are used in France, for mattresses and pillows. *M. Parmentier*, proposed to multiply the breed of WHITE TURKEYS, and to employ for plumes, the feathers found on the lateral part of the thighs of those fowls.

SECTION IX.

Pheasants.

I ACKNOWLEDGED myself obliged to Mr. Castang, at the Menagerie in the Hampstead Road, near Tottenham-Court Road, London, for several novel particulars in the additions to the first edition of this work, which particulars are now arranged under their proper heads. I have been since under a further obligation to the same intelligent and experienced person, on the subject of pheasants, with which my own practical acquaintance has not hitherto been very extensive.

The PHEASANT (*phasianus*) is a native of the old continent, and supposed by ancient authors to have been originally found on the banks of the PHASIS, whence the name was probably derived. The Argonauts, in their celebrated expedition to *Colchis*, together with the golden fleece, brought back with them the Asiatic pheasant, a bird the plumage of which was equally rich and resplendent with

the fleece. This bird, indeed, may well vie with the peacock, if not for gaudiness, yet for the richness, variety, and sober majesty of its colours, and for the beautiful symmetry of its form ; and when Cræsus, king of Lydia, was seated on his throne, adorned with royal magnificence, and all the blazing pomp of Eastern splendour, it is recorded that he asked Solon whether he had ever before beheld so much finery. The Greek philosopher replied, he had seen the beautiful plumage of the pheasant, and had found nothing superior.

The pheasant is not a long-lived bird ; but it is probable the PERIOD OF EXISTENCE assigned to it by some writers, namely, six or seven years, is too short. The wholesomeness of its flesh was proverbial among the old physicians ; it is of a high flavour and alkaliescent quality, and in perfection in autumn. A young pheasant very fat is reckoned an exquisite dainty. In a wild state, the hen LAYS from eighteen to twenty eggs in a season, but seldom more than ten in a state of confinement. Pheasants are not to be tamed by domestication, like other fowls, nor is the flesh of those brought up in the house, in any degree comparable to that of the wild pheasant : thence they are bred at home, either merely for show,

or for the purpose of replenishing the proprietor's grounds, both with regard to number or particular varieties. However good nursing mothers in a wild state, pheasant hens are far otherwise in the house, whence their eggs are always HATCHED at home by the common hen, generally, at present, by the smooth-legged BANTAM. The natural NEST of the pheasant is composed of dry grass and leaves, which being provided for her in confinement she will sometimes properly dispose. The cock is bold, voracious, and cruel; and one which I had many years ago, caught a canary bird which had accidentally escaped, and was observed with it beneath his talons, in the proper attitude of the hawk, tearing it to pieces and devouring it. Pheasants have been seen preying upon a dead carcase, in company with carrion crows, and it has been said that they will fall upon a diseased and weak companion of their own species, and devour it. They feed upon all kinds of insects and vermin, like the peacock, and are said to be particularly greedy of toads, provided they be not too large to swallow; whereas, according to report, they will not touch the frog, of which ducks are so fond.

The progeny between the pheasant and

the common fowl, are necessarily MULES, as proceeding from different species, although of the same genus. They may be obtained, with some little difficulty, which they scarcely repay, as being neither an improvement in form nor goodness of the flesh. The best method is to confine a cock-pheasant half grown with two pullets of the same age, either game, bantam, or common, as may be desired.

In the *Annals of Sporting*, published by SHERWOOD, JONES, and Co. (article Poaching pheasants with a game cock,) it is recommended as the best method of crossing game, or common hens with the pheasant, to make them a house in a pleasant preserve, near home, and they will soon associate with the pheasants, and be trodden by the cocks.

The best known VARIETIES of the pheasant, are the GOLDEN, the SILVER, the PEACOCK or SPOTTED, and the COMMON EUROPEAN or ENGLISH, generally brown with a less brilliancy of colouring. Mr. Castang, however, enumerates six distinct varieties, exclusive of the common, as follow: the GOLD and SILVER, natives of China, and very hardy in this country, and good breeders. The RING-NECKS, natives of Tartary, bred in China, very scarce;

their plumage very beautiful. The WHITE and PIED; both sorts will intermix readily with our common breed, as will the BOHEMIAN, one of the most beautiful of its kind, and equally scarce. The GOLDEN variety is generally of the highest price, the common most hardy, and of the largest size.

INSTRUCTIONS

FOR BREEDING PHEASANTS,

*By P. CASTANG, Son-in-law and Manager
to the late JOSHUA BROOKS.*

EGGS being provided, put them under a hen that has kept the nest three or four days; and if you set two or three hens on the same day, you will have the advantage of shifting the good eggs. At the end of ten or twelve days, throw away those that are bad, and set the same hen or hens again, if setting hens should not be plenty.

The hens having set their full time, such of the young pheasants as are already hatched, put into a basket, with a piece of flannel till the hen has done hatching.

The brood, now come, put under a frame with a net over it, and a place for the hen, that she cannot get to the young pheasants, but that they may go to her: and feed them with boiled egg cut small, boiled milk and bread, alum curd, ants' eggs, a little of each sort, and often.

After two or three days they will be acquainted with the call of the hen that hatched them, may have their liberty to run on the grass plat, or elsewhere, observing to shift them with the sun, and out of the cold winds; they need not have their liberty in the morning till the sun is up; and they must be shut in with the hen in good time in the evening.

Every thing now going on properly, you must be very careful (in order to guard against the distemper to which they are liable) in your choice of a situation for breeding the birds up; and be less afraid of foxes, dogs, pole cats, and all sorts of vermin, than the *distemper*. I had rather encounter all the former than the latter: for those with care may be prevented, but the distemper once got in is like the plague, and destroys all your hopes. What I mean by a good situation, is nothing more than a place where no poultry, pheasants, or turkeys, &c. have ever been kept; such as the warm side of a field, orchard, pleasure-ground, or garden, or even on a common, or a good green lane, under circumstances of this kind; or by a wood side; but then it is proper for a man to keep with them under a temporary hovel, and to have two or three dogs chained at a proper

distance, with a lamp or two at night. I have known a great number of pheasants bred up in this manner in the most exposed situations. It is proper for the man always to have a gun, that he may keep off the hawks, owls, jays, magpies, &c. The dogs and lamps shy the foxes more than any thing; and the dogs will give tongue for the man to be on his guard if smaller vermin are near, or when strollers make their appearance.

The birds going on as before mentioned, should so continue till September, or (if very early bred,) the middle of August. Before they begin to shift the long feathers in the tail, they are to be shut up in the basket with the hen regularly every night; and when they begin to shift their tail the birds are large, and begin to lie out, that is, they are not willing to come to be shut up in the basket: those that are intended to be turned out wild, should be taught to perch, (a situation they have never been used to;) this is done by tying a string to the hen's leg, and obliging her to sit in a tree all night: be sure you put her in the tree before sun-set; and if she falls down, you must persevere in putting her up again till she is contented with her situation; then the young birds will follow the hen and

perch with her. This being done, and the country now covered with corn, fruits, and shrubs, &c. &c. they will shift for themselves.

For such young pheasants as you make choice of for your breeding stock at home, and likewise to turn out in spring following, provide a new piece of ground, large and roomy for two pens, where no pheasants, &c. have been kept, and there put your young birds in as they begin to shift their tails. Such of them as you intend to turn out at a future time, or in another place, put into one pen netted over, and leave their wings as they are; and those you wish to keep for breeding put into the other pen, cutting one wing of each bird. The gold and silver pheasants you must pen earlier, or they will be off. Cut the wing often; and when first penned feed all your young birds with barley-meal, dough, corn, and plenty of green turnips.

A Receipt to make Alum Curd.

TAKE new milk, as much as your young birds require, and boil it with a lump of alum, so as not to make the curd hard and tough, but custard like.

N. B. A little of this curd twice a day, and

ants' eggs after every time they have had a sufficient quantity of the other food. If they do not eat heartily, give them some ants' eggs to create an appetite, but by no means in such abundance as to be considered their food.

The DISTEMPER alluded to above, is not improbably of the same nature as the roup in chickens, contagious, and dependent on the state of the weather; and for prevention requiring similar precautions.

GENERAL DIRECTIONS. Not more than FOUR HENS to be allowed in the pens to one cock. And in the OUT COVERS, three hens to one cock may be sufficient, with the view of allowing for accidents, such as the loss of a cock or hen. Never put more EGGS under a hen than she can well and closely cover, the eggs fresh and carefully preserved. SHORT BROODS to be joined and shifted to one hen: common hen pheasants in close pens, and with plenty of cover, will sometimes make their NESTS and hatch their own eggs: but they seldom succeed in rearing their brood, being so naturally shy; whence, should this method be desired, they must be left entirely to themselves, as they feel alarm even in being looked at. Eggs for setting are gene-

rally ready in April. Period of INCUBATION the same in the pheasant as in the common hen. Pheasants, like the pea-fowl, will clear grounds of insects and reptiles, but will spoil all WALL-TREES within their reach, by peck-off every bud and leaf.

Feeding. Strict CLEANLINESS to be observed, the meat not to be tainted with dung, and the water to be pure and often renewed. Ants' eggs being scarce, hog-lice, ear-wigs, or any insects may be given; or artificial ants' eggs substituted, composed of flour beaten up with an egg and shell together, the pellets rubbed between the fingers to the proper size. After the first three weeks, in a scarcity of ants' eggs, CASTANG gives a few GENTLES, procured from a good liver tied up, the gentles, when ready, dropping into a pan or box of bran; to be given sparingly, and not considered as common food.

Food for grown pheasants, barley or wheat; generally the same as for other poultry. In a cold spring, HEMP SEED, or other warming seeds are comfortable, and will forward the breeding stock.

Of the noblemen and gentlemen who have PRIVATE MENAGERIES for pheasants, and who are large breeders, Lord BRAYBROOK, at Aud-

ley End, Essex, and the Earl of JERSEY, at Osterley Park, Middlesex, are among the most eminent. There are also pheasant breeders who make a trade of it, rearing two or three hundred in a season. It was formerly held impracticable to breed any considerable number of these birds, on the supposition that they could not be reared on any other food than ants' eggs, of which a sufficient plenty could never be depended on; but in all probability, those already recommended are very sufficient substitutes.

The following information was lately communicated to the author, by a landed Gentleman of Scotland, his respected friend. "About fifty years ago the Pheasant was introduced into the South East County of Scotland, which, for climate, shelter, and food, is perhaps the best: within the last twenty years, several Gentlemen have attempted to naturalize it in the counties of Fife and Forfar, north of the great estuary of the Forth. The experiment has succeeded completely, for few estates are better stocked with pheasants, than those of Raith, Wemyss Castle, and Dunnikin, in Fifeshire; or Rosse Priory and Brechin Castle, north of the river Tay. The Earl of Fife has stocked his estates in Bamf-

shire, and even so far north the pheasant thrives well. On the West of Scotland I am not informed that the pheasant has yet been tried beyond Ayrshire, where, however, it abounds on the estates of the Earls of Eglington and Cassilis. It is almost needless to mention, that pheasants will abound no where without winter food: in Scotland, this perhaps more particularly than in England; because, although the former country be well wooded by plantation, there is very little natural wood, and of course underwood is scarce. The berries and insects that underwood affords, are great sources of support to the pheasant. The pheasant, the turkey, and even our common cocks and hens, thrive best on a mixture of corn, wild seeds, and insects. The winter feeding of pheasants in Scotland, is confined to throwing into their resorts, sheaves of oats."

SECTION X.

On feeding and fattening Chickens.

THE points for consideration on this branch of the subject are—the local conveniences, the modes, common or extraordinary, the variety and quality of the food, and the length of time necessary for completion of the object.

The well-known common methods are, to give fowls the run of the farm-yard, where they thrive upon the offals of the stable, and other refuse, with perhaps some small regular daily feeds, but particularly at thrashing time, they become fat, and are thence styled BARN-DOOR FOWLS, probably the most delicate and high-flavoured of all others, both from their full allowance of the finest corn, and the constant health in which they are kept, by living in the natural state, and having the full enjoyment of air and exercise; or they are confined during a certain number of weeks, in coops, those fowls which are soonest ready, being drawn as wanted. It is a common practice

with some housewives, to coop their barn-door fowls for a week or two, under the notion of improving them for the table and increasing their fat; a practice which, however, seldom succeeds, since the fowls generally pine for their loss of liberty, and, slighting their food, lose instead of gaining additional flesh. Such a period, in fact, is too short for them to become accustomed to confinement.

FEEDING-HOUSES, at once warm and airy, with earth floors, such as have been already described, well raised, and capacious enough to accommodate twenty or thirty fowls, have always succeeded best, according to my experience. The floor may be slightly littered down, the litter often changed, and the greatest cleanliness should be observed. Sandy gravel should be placed in several different layers, and often changed. A sufficient number of troughs, for both water and food, should be placed around, that the stock may feed with as little interruption as possible from each other, and perches in the same proportion should be furnished for those birds which are inclined to perch, which few of them will desire, after they have begun to fatten, but which helps to keep them easy and contented until that period. In this mode fowls may be fattened to

the highest pitch, and yet preserved in a healthy state, their flesh being equal in quality to that of the barn-door fowl. I am aware that to suffer fattening fowls to perch, is contrary to the general practice, since it is supposed to bend and deform the breast-bone; but as soon as they become heavy and indolent from feeding, they will rather incline to rest in the straw; and the liberty of perching on the commencement of their cooping has a tendency to accelerate that period, when they are more inclined to rest on the floor. Fowls, moreover, of considerable growth, will have many of them become already crooked breast-ed from perching whilst at large, although much depends upon form in this case, since we find aged cocks and hens of the best shape, which have perched all their lives with the breast-bone perfectly straight.

It has always been a favourite maxim among feeders, that THE PRIVATION OF LIGHT, by inclining fowls to a constant state of repose, excepting when moved by the appetite for food, promotes and accelerates obesity. It may probably be so, although not promotive of health; but as it is no question, that a state of obscurity obtained in this way, cannot be a state of health, a real question arises—

whether the flesh of animals so fed, can equal in flavour, nutriment, and salubrity, that of the same species fed in a more natural way? Pecuniary and market interest may perhaps be best answered by the plan of darkness and close confinement, but a feeder for his own table, of delicate taste, and ambitious of furnishing his board with the choicest and most salubrious viands, will declare for the natural mode of feeding; and in that view, A FEEDING-YARD, gravelled and sown with the grasses already described, the room being open all day, for the fowls to retire at pleasure, will have a decided preference, as the nearest approach to the barn-door system.

Insects and animal food, also, form a part of the natural diet of poultry, are medicinal to them in a weakly state, and the want of such food may sometimes impede their thriving.

Sized store fowls have been intended thus far; but the above feeding-rooms are well calculated for fattening the younger chickens, which may be put up as soon as the hen shall have quitted her charge, and so to speak, before they have run off their sucking flesh. For generally when well kept and in health, they will be in fine condition and full of flesh,

at that period, which flesh is afterwards expended in the exercise of foraging for food, and in the increase of stature, and it may be a work of some time afterwards to recover it, and more especially in young cocks, and all those which stand high upon the leg. In fact, all those that appear to have long legs, should be fattened from the hen, to make the best of them ; it being extremely difficult, and often impossible, to fatten long-legged fowls in coops, which, however, are brought to a good weight at the barn-door.

In the year 1779, says one of those small publications, which are circulated through the country, for the instruction of our housewives, a gentleman in London presented to a learned body, a newly-invented method of rearing chickens for the spit, quicker than was ever before discovered, for which the learned society honoured him with a gold medal. The method is as follows :—the chickens are to be taken from the hen, the night after they are hatched, and fed with eggs boiled hard, chopped, and mixed with crumbs of bread, as larks and other birds are fed, for the first fortnight ; after which, give them oatmeal and treacle, mixed so as to crumble, of which the chickens are very fond, and thrive so fast that

at two months' end, they will be as large as full grown fowls. On this sagacious project, I shall only remark, that, however learned the public body alluded to might be on other important subjects, they appear by this award, to have shewn little information in chickenology.

In the choice of FULL-SIZED fowls for feeding, the short-legged and early-hatched always deserve a preference. The green linnet is an excellent model of form for the domestic fowl, and the true Darking breed approaches the nearest to such model. In course, the smaller breeds and the game, are the most delicate and soonest ripe. The London chicken butchers as they are termed, or poulterers, are said to be of all others the most dexterous and expeditious feeders, putting up a coop of fowls and making them thoroughly fat within the space of a fortnight; using much grease, and that perhaps not of the most delicate kind, in the food. In this way, I have no boasts to make, having always found it necessary to allow a considerable number of weeks for the purpose of making fowls fat in coops. In the common way, this business is often badly managed, fowls being huddled together in a small coop, tearing

each other to pieces, instead of enjoying that repose which alone can ensure the wished for object ; irregularly fed and cleaned, until they are so *stenched* and poisoned in their own excrement, that their flesh actually smells and tastes of it when smoking upon the table.

All practical and practicable plans have their peculiar advantages, among others, that of leaving poultry to FORAGE AND SHIFT FOR THEMSELVES ; but where a steady and regular profit is required from them, the best method, whether for domestic use or sale, is CONSTANT HIGH KEEP from the beginning, whence they will not only be always ready for the table with very little extra attention, but their flesh will be superior in juciness and rich flavour, to those which are fattened from a low or emaciated state. Fed in this mode, the SPRING PULLETS are particularly fine, at the same time most nourishing and restorative food. The pullets which have been hatched in March, if high fed from the *teat*, will lay plentifully through the following autumn, and not being intended for breeding stock, the advantage of their eggs may be taken, and themselves disposed of thoroughly fat for the table in February, about which period their laying will be finished. In February, 1792, we

had a fine shew of white and coloured pullets, most wonderfully improved in size, although we had not for years changed our stock, and so excessively fat from the run of the barn-yard, that they opened more like Michaelmas geese than chickens.

Instead of giving ordinary and TAIL-CORN to my fattening and breeding poultry, I have always found it most advantageous to allow the heaviest and best, putting the confined fowls upon a level with those fed at the barn-door, where they have their share of the weightiest and finest corn. This high feeding shews itself not only in the size and flesh of the fowls, but in the size, weight, and substantial goodness of their eggs, which in those valuable particulars will prove far superior to the eggs of fowls fed upon ordinary corn or washy potatoes; two eggs of the former going farther in domestic use than three of the latter. The water also given to fattening fowls should be often renewed, fresh and clean; indeed, those which have been well kept, will turn with disgust from ordinary food and foul water. The profit of my plan, allowing the heaviest and best corn to poultry, has lately been disputed, both in France and England. The sum of my rejoinder is, that I

have simply recorded matter of experimental fact.

EGGS. December 7, half-bred Poland hen matched with the cock: began to lay on the 28th. On March 1, 1806, she had laid 56 eggs, and afterwards set over 12 eggs. After incubation had commenced she laid two eggs, making the total 58, which two were withdrawn. Her eggs unbroken weighed from one ounce three quarters, to two ounces each, amounting, at one and three quarters each, to nearly seven pounds avoirdupois. I had, from motives of curiosity, deducted the weight of the shells, but the memorandum is lost. The eggs of another hen, in poor condition and ill fed, were small, light, and the yolk unsubstantial; the same hen, after good feeding, laid plenty of eggs of larger size, and nearly double the weight. The largest eggs will weigh two ounces and a half, those of the Chittagong hen, perhaps, three ounces. To promote fecundity and great laying in the hen, nothing more is necessary than the best corn and fair water; but malted or sprouted barley, has occasionally a good effect, whilst the hens are kept on solid corn; but if continued too long, they are apt to scour. Cordial horse-ball is good to promote laying in the

cold season, and toast and ale, as every housewife well knows. It must be noted, that nothing is more necessary towards success in the particular of obtaining plenty of eggs, than a good attendance of cocks, especially in the cold season; and it is also especially to be observed, that a cock whilst moulting is generally useless. My practice is, to withdraw a cock under that circumstance to a separate walk, and substitute another, which is known and familiar with the hens, since a stranger will not always be received, and such a circumstance will sometimes totally interrupt the business of the poultry-yard: these particulars respecting the cock require the more especial attention, since, according to the old poultry books, one cock was deemed sufficient for ten or even a dozen hens, whereas in winter time, a cock to every four hens may be necessary. Buffon says, a hen well fed and attended will produce upwards of one hundred and fifty eggs in a year, besides two broods of chickens. I have observed, that a hen generally CACKLES three or four days previously to laying. Some half-bred game hens began to lay as soon as their chickens were three weeks old; the consequence of high-keep and good attendance of the cocks.

A correspondent in France (1815) informed me, that my little book had reached that country, so celebrated for poultry, and that the good housewives of France made themselves very merry with my practice of restricting the cock to so few as half a dozen hens, their allowance being twenty, or even twenty-five. The French Naturalists also in their new Dictionary, I find, have copied and recommended this liberal practice. What difference, in such respect, may subsist between the soil or animals of England and France, I am not qualified to determine; I can only assure the reader that my rule is the result of long and actual experience. A certain English traveller, nearly twenty years since, brought home and published an account almost equally extraordinary of French *men*. That point also, I leave to abler judges. As to poultry keepers in any country, it will readily be believed that they make few experiments, and still fewer records; and the keeper of two or three score hens, at any rate breeding a considerable stock from such a *number*, does not trouble himself to investigate the merits of his practice, satisfied that it is according to the established mode.

QUANTITIES OF FOOD. By an experiment

made in July, 1806, a measured peck of good barley, kept in a high style of condition, the following stock, confined, and having no other provision : one cock, three hens, three March chickens, six April, and six May ditto, during eight clear days, and one feed left. According to another trial, in the winter season, a cock and two hens kept by themselves seven clear days, consumed a quarter of a peck of the best barley, having no other food, having as much as they chose to eat. The same being tried at their liberty, and pecking about, with cabbage leaves occasionally thrown to them, did not eat so much barley in the week, although allowed all they desired. They were in a perfect thriving state, but it must be remembered that light and ordinary corn would not have gone so far, or have kept the fowls in such condition. Poultry which have their fill of corn will eat occasionally cabbage or mangold wurtzel leaves greedily. Barley and wheat are the great dependence for chicken poultry. The heaviest oats will keep them it is true, but neither go so far as other corn, nor agree so well with the chickens, being apt to scour them, and the chickens generally are tired of oats after a while. Brank or French wheat, is also an unsubstantial food.

The CAPON. I have already acknowledged my inferiority in the affair of quickly feeding poultry in close coops, and have a similar acknowledgement to make, respecting capons, never having any success in cutting either fowls or rabbits for such purposes, nor in truth, much affecting the practice, which, however, has long been successfully carried on by the breeders of Sussex and Berks, and seems to have been almost entirely confined to that part of the country. In fact, the mode of performing the operation seems to be utterly unknown elsewhere, or granting that the common cutters and cow-leeches have some speculative knowledge thereon, they generally kill the patient, in their attempt at the practice. The Chinese are said to be particularly skilful in this operation, the outline of which, according to their mode, I give as a matter of curiosity. *The wings of the fowl are folded back till they meet, and the left foot of the operator is placed upon them, the great toe of his right foot pressing upon the legs to keep them fast. After pulling the feathers, an incision is made, one inch long, and one inch from the spine, obliquely downwards and forward.* The reader may smile at that which may be deemed false delicacy in me, but I

have naturally a kind of dread and abhorrence of all practices of this kind, however profitable. I can take the life of an animal without the shadow of a scruple, but every act that bears the semblance of torture shocks me to the marrow. They who wish to have their fowls or rabbits safely cut, where the practice is not common, must procure an operator from the proper district.

CRAMMING. Barley and wheat meal are generally the basis or chief ingredient, in all fattening mixtures for chickens and fowls; but in Sussex, ground oats are used, and in that county, I think, oats are in higher repute for fattening than elsewhere, many large hogs being there fattened with them. The Sussex men making the highest pretensions as poultry-feeders, I shall give them the precedence in quotation. In the report for that county, the Rev. Arthur Young says, "North Chappel, Kinsford, &c. are famous for their fowls. They are fattened there to a size and perfection unknown elsewhere. The food given them is ground oats made into gruel, mixed with hog's grease, sugar, pot liquor, and milk: or ground oats, treacle, and suet, sheep's plucks, &c. The fowls are kept very warm, and crammed morning and night. The pot-liquor is

mixed with a few handfuls of oatmeal and boiled, with which the meal is kneaded into crams or rolls of a proper size. The fowls are put into the coop, two or three days before they are crammed, which is continued for a fortnight, and they are then sold to the higgler. Those fowls, full grown, weigh seven pounds each, the average weight five pounds, but there are instances of individuals double the weight. They were sold at the time of the survey, at four to five shillings each. Mr. Turner, of North Chappel, a tenant of Lord Egremont, crams two hundred fowls per annum. Many fat capons are fed in this manner; good ones always look pale and waste away; great art and attention is requisite to cut them, and numbers are destroyed in the operation. The Sussex breed are too long in the body to be cut with much success, which is done at three quarters old." Thus far Mr. Young—but what can possibly be meant by—good ones always looking pale, and wasting away? One would suppose that, "wasting away," must be indicative of loose, flabby, and bad flesh, instead of good.

OAKINGHAM, in Berks, is particularly famous for fatted fowls, by which many persons in that town and vicinity gain a livelihood.

The fowls are sold to the London dealers, and the sum of £150 has been returned in one market day by this traffic. Twenty dozen of these fowls were purchased for one gala at Windsor, after the rate of half a guinea the couple. At some seasons, fifteen shillings have been paid for a couple. Fowls constitute the principal commerce of the town. Romford, in Essex, is also a great market for poultry, but generally of the store or barn-door kind, and not artificially fed.

The Oakingham METHOD OF FEEDING is to confine the fowls in a dark place, and cram them with a paste made of barley-meal, mutton suet, treacle, or coarse sugar, and milk, and they are found completely ripe in a fortnight. If kept longer, the fever that is induced by this continued state of repletion, renders them red and unsaleable, and frequently kills them. Geese are likewise bred in the same neighbourhood, in great numbers, and sold about Midsummer to itinerant dealers, the price at the time the survey was made, two shillings, to two and threepence each. I must presume to repeat, it appears to me utterly contrary to reason, that fowls fed upon such greasy and impure mixtures can possibly produce flesh or fat so firm, delicate, high

flavoured, or nourishing, as those fattened upon more simple and substantial food; as for example, meal and milk, and I think lightly of the addition of either treacle or sugar. With respect to grease of any kind, its chief effect must be to render the flesh loose and of indelicate flavour. Nor is any advantage gained, excluding the commercial one, as I confine myself entirely to the consideration of home use by very quick feeding: for real excellence cannot be obtained but by waiting nature's time, and using the best food. Besides all this, I have been very unsuccessful in my few attempts to fatten fowls by cramming—they seem to loathe the crams, to pine, and to lose the flesh they were put up with, instead of acquiring fat; and where crammed fowls do succeed, they must necessarily, in the height of their fat, be in a state of disease.

SALE AND PRICES. At Christmas, 1804, a Sussex farmer received from his salesman in London, seven shillings each for one lot of **CAPONS**, for another ten shillings each. The best of them weighed eight pounds each. At the same time, two India ships took out as stores, one hundred and fifty dozen of **HENS**, no cocks were admitted on account of the danger

of their fighting, nor any young poultry, as they will not stand a sea voyage.

Prices at the London Poulterers, December 18th, 1817. Turkeys, 16s. to 21s. each; Fowls of 2lbs. 3s. 6d.; Geese, 7s. to 9s. 6d. Ducks and Mallards, 7s. to 9s. Fine tame Pigeons, 3s. to 4s. a pair; common dove-house and wild Pigeons, 9s. to 12s. per dozen.

October 20, 1821, Turkeys, 6s. to 10s. 6d. each; Fowls, 4s. to 9s. the couple; Geese, 4s. to 7s. 6d.; Ducks, 5s. 6d. the couple; Wild Ducks, 5s. to 7s. the couple; Tame Pigeons, 1s. 6d. to 2s. the pair; common dove-house and wild Pigeons, 6s. to 8s. the dozen; Wid-geons, 4s. to 5s. the couple. In course these articles are somewhat cheaper in the open market.

Autumn, 1823, and Spring, 1824, Turkeys at Christmas from 12s. to 30s. each; Spring, 9s. to 15s.; Geese in the Autumn, 7s. to 11s.; Ducks, 8s. to 9s. the couple; Ducklings, Spring, 10s. to 12s. the couple; Fowls, Autumn, 5s. to 9s.; Spring, 6s. to 12s.; Tame Pigeons, the pair, 3s. 6d.; common dove-house and wild Pigeons, the dozen, 18s.; Wid-geons, the couple, 7s.

SECTION XI.

The Turkey.—Breeding and Management.

THE turkey-cock is sufficient for six hens, and even more, under the management of some districts, where one breeder keeps a cock for his own, and for the use of his neighbours, who send their hens, and in that mode avoid the charge of keeping a cock ; but this practice is exposed to uncertainty, and is scarcely worth following, although, whilst the hen is sitting, the absence of a cock is no loss, as he will sometimes find the opportunity of tearing the hen from her nest, and in the struggle, of destroying the eggs.

The hen will cover, according to her size, from nine to fifteen eggs, and unless attended to, will, perhaps, steal a nest abroad in some improper and insecure place. The turkey hen lays a considerable number of eggs in the spring, to the amount of eighteen to twenty-five and upwards, and her term of incubation is thirty days. She is a most steady sitter,

and will sometimes continue upon her eggs until almost starved, rather than quit her nest: hence the necessity of constant attendance with both victuals and water. She is also a most affectionate mother; and that most curious and accurate observer, Buffon, remarks her soft and plaintive cry, with her different tones and inflections of voice, expressive of her various feelings. These facts, however, are to be received with a due degree of circumspection, since I have known unsteady sitters among turkeys, and however affectionate, the turkey-hen, from her natural heedlessness and stupidity, is the most careless of mothers, and being a great traveller herself, will drag her brood over field, heath, or bog, never casting her regard behind her to call in her straggling chicks, nor stopping whilst she has one left to follow her. She differs beside, in this particular, from the industrious common hen; she never scratches for her chicks, leaving them entirely to their own instinct and their own industry. On these accounts, where turkeys are bred to any extent, and are permitted to range, it is necessary to allow them a KEEPER. The turkey-hen is nevertheless extremely vigilant and quick in the discovery of any birds of prey in the air which

may endanger her brood, and has the faculty, by a peculiar cry, of communicating her alarm, on which the chicks immediately seek shelter, or squat themselves upon the earth: but she will not, from her timid nature, fight for her brood as the common hen will. The domesticated, as well as the wild turkey, run with considerable speed.

The CHICKS must be withdrawn from the nest as soon as hatched, and kept very warm. It is a very old and very general custom, to plunge them instantly into cold water, and then give them each a whole pepper-corn, with a small tea spoonful of milk. This baptism is used by way of a prophylactic against catching cold, to which young chicks are so peculiarly liable; but it is a practice which I have never used, and from which, in severe weather, I should suspect danger; however, their being instantly thereafter wrapped in wool or flannel may secure them. The turkey, from sitting so close and steadily, hatches more regularly and quickly than the common hen.

The hen and brood must be HOUSED during a month or six weeks, dependent upon the state of the weather. First FOOD, curd and barley-meal kneaded with milk, and fre

quently renewed with clear water, rather than milk, which often scours them. In case of the chicks appearing sickly and the feathers ruffled, indicating a chill from severity or change of weather, we generally allowed half ground malt with the barley-meal, and by way of a medicine, powdered caraway or coriander seeds. Also ARTIFICIAL WORMS, or boiled meat pulled into strings, in running after which the chicks have a salutary exercise. It is to be noted, that the above diet is beneficial for every other species of chicks, equally with the turkey. Superfluous moisture, whether external or internal, is death to chickens, therefore all slop victuals should be rigorously avoided. The utmost CLEANLINESS is necessary, and a dry GRAVELLED layer is most proper. A fresh TURF of short sweet grass daily, cleared from snails or slugs, which will scour young chicks, is very pleasing and comfortable to them, and promotes their health. The above substantial food was always our chief dependence with this brood, nor did we ever find it necessary to waste time in collecting ants' eggs or nettle seed, or give clover, rue, or wormwood, according to the directions of the elder house-wives. Eggs boiled hard are equally proper with curd, and generally

nearer at hand; the eggs being rotten, is said to be no objection, although we never used such.

Our first preference for water instead of milk for turkey chicks, so much recommended by the old writers, arose from the observation that chickens at large, among the troughs of milk-fed pigs, generally were sickly and scouring, and rough in their feathers; and more particularly so when they had access to potatoe wash, which not only purged them, but glued their feathers together, keeping them in a comfortless and unhealthy state.

The weather being remarkably favourable, we have usually cooped the hen abroad, about two hours in the forenoon, in a moderately warm sun, whilst the chicks were only three or four weeks old, great care being taken that they did not stray far from the coop. Six weeks is their longest period of confinement within doors, after which it is more safe to coop the hen for another fortnight, that the chicks may acquire strength abroad sufficient to enable them to follow the dam, they being naturally inclined to stray too far, and to weaken themselves by fatigue. When full half-grown and well feathered, they become sufficiently hardy, and in a good range will

provide themselves throughout the day, requiring only to be fed at their out-letting in the morning, and on their return at even : the same in spacious farm-yards ; if confined to the poultry yard their food and treatment is similar to that of the common cock and hen. Turkeys would prefer roosting abroad upon high trees, in the summer season, could that be permitted with a view to their safe keeping.

TO FATTEN. Sodden barley, or barley and wheat meal mixed, is the proper food for turkeys confined to feeding ; generally, their food and treatment are the same with other fowls. They may be fattened early, or may be CAPONIZED, a practice not very common, but the bulk of the turkeys are fed for Christmas, or the months immediately preceding and subsequent, when the quantities fat sent from Norfolk alone, are immensely great ; as also are previously the droves of store turkeys. Turkeys share with the geese in gleaning the corn fields, or shacking, and the former forage over the woods and commons, in the autumnal season, after which they are put up to be completely fattened. I have heard of the Norfolk turkeys fattened to weigh twenty, and even thirty pounds each ; and Buffon relates that the wild turkey of America has been known

to attain the weight of sixty pounds; but I have never made any heavier than fifteen pounds, ready for the spit.

Turkeys are the most tender and difficult to rear of any of our domestic fowls; but with due care and attention, which, rightly considered, in all things, give the least trouble, they may be produced and multiplied with little or no loss, and the same may be averred with all truth, of the rest of our domestic fowls, and animals in general; the losses and vexations annually deplored, arising almost entirely from ignorance and carelessness united hand in hand. Turkeys as well as geese, under a judicious system, may be rendered an object of a certain degree of consequence to the farmer.

AQUATIC FOWLS.

Under a regular system, it would be preferable to separate entirely the aquatic from the other poultry, the former to have their houses ranged along the banks of a piece of water, with a fence, and sufficiently capacious walks in front; access to the water by doors to be closed at will. Should the water be of considerable extent, a small boat would be necessary, and might be also conducive to the pleasure of angling.

It may be necessary to mention, by way of caution, a case which occurred in our poultry-yard. The ducks having been kept a considerable time from the water, by a severe frost, on a certain fine day, the ice was broken for their convenience : being full of play several were lost by diving under the ice, and great uncertainty would have prevailed as to their fate, but a further breach of the ice chanced to be made, almost immediately beneath which they were found drowned.

The DUCK will cover from eleven to fifteen eggs ; her term of incubation THIRTY days. One DRAKE to five ducks. They begin to lay in February, and unless watched will lay abroad and conceal their eggs. The duck on leaving her nest, will cover the eggs with leaves, or anything within her reach, as will the goose, sometimes ; the hen never. Our old housewives had a notion that the variety of ducks, which have the bill bending upwards, lay a greater number of eggs than common, of which I can say nothing from my own observation, but can remark, that, with ducks well fed, I never failed to have plenty of eggs. The duck generally lays by night, or early in the morning, seldom after ten o'clock, with the exception of chilling and comfortless weather,

when she will occasionally retain her egg until mid-day, or afternoon. In order to keep her within until she has laid, some will EXAMINE HER, but it is better avoided, as her appearance and weight behind, or otherwise, may be trusted to, by constant observers. Accustomed to a nest, she will not forsake it. It has been formerly directed, to give each duck her own eggs, to which, however, much consequence need not be attached ; nevertheless, the eggs may be appropriated to each, with respect to colour ; since white and light-coloured ducks produce similar-coloured eggs, and the brown and dark-coloured ducks those of the greenish blue and largest size. At any rate, it is most safe that the eggs be all of one colour, since I have known some few instances of the duck turning out with her bill those eggs which were not of her natural colour. The duck swimming with her tail flat and level with the water, indicates her egg being ready for protrusion.

In April 1823, a duck, the property of Mr. John Morrel, of Belper Dally, laid an egg every day, for eighty-five successive days.

During INCUBATION, the duck requires a secret and safe place, rather than any attendance, and will, at nature's call, cover her eggs

and seek her food, and the refreshment of the waters. On HATCHING, there is not often a necessity for taking away any of the brood, barring accidents; and having hatched, let the duck retain her young upon the nest her own time. On her moving with her brood, prepare a coop, upon the short grass, if the weather be fine, or under shelter if otherwise: a wide and flat dish of water, often to be renewed, standing at hand; barley, or any meal, the first food. In rainy weather particularly, it is useful to clip the tails of the ducklings, and the surrounding down beneath, since they are else apt to draggle and weaken themselves. The duck should be cooped at a distance from any other. The period of her confinement to the coop, depends on the weather and the strength of the ducklings. A fortnight seems the longest time necessary; and they may sometimes be permitted to enjoy the pond at the end of a week, but not for too great a length at once, least of all in cold wet weather, which will affect and cause them to scour and appear rough and draggled. In such case, they must be kept within a while, and have an allowance of bean or pea meal mixed with their ordinary food. The meal of buck wheat and the former is

then proper. The straw beneath the duck should be often renewed, that the brood may have a dry and comfortable bed; and the mother herself be well fed with solid corn, without an ample allowance of which, ducks are not to be reared or kept in perfection, although they gather so much abroad.

DUCK EGGS are often hatched by HENS, when ducks are more in request than chickens; also as ducks, in unfavourable situations, are the more easy to rear, as more hardy; and the plan has no objection in a confined place, and with a small stock, without the advantage of a pond; but the hen is much distressed, as is sufficiently visible, and, in fact, injured, by the anxiety she suffers in witnessing the supposed perils of her children venturing upon the water.

Ducks are FATTENED, either in confinement, with plenty of food and water or full as well restricted to a pond, with access to as much solid food as they will eat; which last method I prefer. They fatten speedily, in this mode, mixing their hard meat with such variety abroad, as is natural to them, more particularly, if already in good case; and there is no check or impediment to thrift from pining, but every mouthful tells and weighs it

due weight. A dish of mixed food, if preferred to whole corn, may remain on the bank, or rather in a shed, for the ducks. I must here mention a fact, which I have either actually verified, or supposed that I have verified. BARLEY, in any form, should never be used to fatten aquatics, ducks or geese, since it renders their flesh loose, *woolly*, and insipid, and depriving it of that high savoury flavour of brown meat, which is its valuable distinction ; in a word, rendering it *chickeny*, not unlike in flavour the flesh of ordinary and yellow-legged fowls. OATS, whole or bruised, are the standard fattening material for DUCKS and GEESE, to which may be added pea-meal, as it may be required. The house-wash is profitable to mix up their food, under confinement ; but it is obvious, whilst they have the benefit of what the pond affords, they can be in no want of loose food.

Acorns in season, are much affected by ducks which have a range ; and in former days residing on the borders of a forest, I had annually great numbers fattened entirely on that provision, to such excess, that the quantity of fat was inconvenient, both in cooking, and upon the table. Ducks so fed, are certainly inferior in delicacy, but the flesh eats

high, and is far from disagreeable. I have also occasionally ate of them fed on butchers' offal, when the flesh resembles wild fowl in flavour, with, however, considerable inferiority. Offal-fed ducks' flesh does not yet emit the abominable stench which issues from offal-fed pork, and with which the dining tables of London are so frequently and satisfactorily perfumed.

The Goose.

A GANDER and five geese comprise a single breeding stock. The goose sits upon her eggs from twenty-seven to thirty days, covering from eleven to fifteen eggs. A nest should be prepared for her in a secure place, as soon as carrying straw in her bill, and other tokens, declare her readiness to lay. The earliness and warmth of the spring are the general causes of the early laying of geese, which is of consequence, since there may be time for two broods within the season, not however a common occurrence; and which happening successively for two or three seasons, has occasioned some persons formerly, to set a high value upon their stock, as if of a peculiar and more valuable breed than the common. The method, however, to attain

this advantage is, to feed breeding geese high throughout the winter, with solid corn, and on the commencement of the breeding season, to allow them boiled barley, malt, fresh grains, and fine pollard mixed up with ale, or other stimulants.

With a good GANDER present, no mischief can happen to the sitting geese, without extraordinary alarm, he sitting centinel at the chamber-door of his wives. With respect to feeding the goose or duck upon the nest, it may be occasionally required, but is not a thing of much account, since they will generally repair to the water sufficiently often, from their natural inclination. The goose will not quit until she has completed her hatch, nor will it be very practicable to take any of the goslings from her, were it necessary, as she is too strong and resolute, and might kill some in the struggle.

It has been formerly recommended, to keep the newly-hatched GULLS in house, during a week, lest they get cramp from the damp earth, to which they are indeed liable; but we did not find this in-door confinement necessary, penning the goose and her brood between four hurdles, upon a piece of dry grass well sheltered, putting them out late in

the morning, or not at all in severe weather, and ever taking them in early in the evening. Sometimes we have pitched double the number of hurdles, for the convenience of two broods, there being no quarrels among this sociable and harmless part of the feathered race, so unlike those quarrelsome and murderous fiends, the common, or gallinaceous fowls. We did not even find it necessary to interpose a parting hurdle, which on occasion may be always conveniently done. The FIRST FOOD similar to that of the duck, but with some cooling greens, clivers, or the like, intermixed—namely, barley-meal, bruised oats, or fine pollard.

For the FIRST RANGE, a convenient field containing water, is to be preferred to an extensive common, over which the gulls or goslings are dragged by the old one, until they become cramped or tired, some of them squatting down and remaining behind at even, which the good housewife sees no more. It is also necessary to destroy all the HEMLOCK or deadly night-shade, within the range of young geese, many of which drop off annually, from eating that poison, when the cause is not suspected. I know not that the elder geese will eat hemlock, but I believe that both

the young and old have been occasionally killed by swallowing slips of YEW. The young becoming pretty well feathered, will also be too large to be contained or brooded beneath the mother's wings, and will then sleep in groups by her side, and must be supplied with good and renewed straw beds, which they convert into excellent dung. Being now able to frequent the pond, and range the common at large, the young geese will obtain their living, and few people, favourably situated, allow them any thing more, excepting the vegetable produce of the garden. But it has been my constant practice, always to dispense a moderate quantity of any solid corn or pulse at hand, to the flocks of store geese, both morning and evening, on their going out and their return, together, in the evening more especially, with such greens as chanced to be at command: cabbage, mangold-wurtzel leaves, lucern, tares, and occasionally sliced carrots and turnips. By such full keeping our geese were ever in a fleshy state, and attained a large size; the young ones were also forward and valuable breeding stock.

Geese managed on the above mode, will be speedily FATTENED green, that is, at a month

or six weeks old, or after the run of the corn stubbles. Two or three weeks after the latter, must be sufficient to make them thoroughly fat; indeed, I prefer a goose fattened entirely in the stubbles, granting it to have been previously in good case, and be full fed in the field; since an over-fattened goose is too much in the oil-cake and grease-tub style, to admit even the idea of delicacy, tender firmness, or true flavour. But when needful to fatten them, the feeding-houses already recommended, are most convenient. With clean and renewed beds of straw, plenty of clean water, and upon oats crushed or otherwise, pea or bean-meal, the latter, however, coarse and ordinary food; or pollard; the articles mixed up with skimmed milk when to be obtained, geese will fatten pleasantly and speedily. I know nothing of the imposthume, said by our elders to grow upon the rump of the feeding goose, and through which she perpetually, like a bear, sucks her own fat, and which thence must needs be exsected. Nor am I, however ardently attached to the writings of antiquity, sufficiently classical, or a *gourmand* of sufficient taste and calibre, to rival those of ancient Rome, in the size of their goose LIVERS. I have thence never fed my geese during sixteen

days, with a paste of Turkey figs, stamped and beaten up with cream, in order to bring their livers upon the table, each the weight of three or four pounds! I modestly leave such practices to princes, ministers, and men in high place. It may be added, that equal quantities of the meal of RYE and PEASE, mixed with skimmed milk, form an excellent feeding article for geese and ducks.

The SPANISH geese used to be preferred, but I have had no experience of them. Our flocks, whilst we resided in Middlesex, in the year 1788, were esteemed the finest in the vicinity; the breed of them had been procured for us, from the neighbourhood of Bungay, in Suffolk, by Goff, the dealer, already spoken of. At present, (1815,) the *Embden* geese are in the highest esteem. They are all white, male and female, and of a superior, indeed very uncommon size. Whether or not, as might be expected, there be a countervailing objection in a corresponding whiteness, and thence defect of savoury flavour in the flesh, I am unable to say, having yet had no experience in the *Embden* variety of Geese.'

SECTION XII.

Pigeons.

THE PIGEON is recorded as one of the most ancient inhabitants of all climates, those excepted in the vicinity of the poles; it prospers abundantly in temperate regions, but in a still higher degree under the burning sun of the tropics, no heat being too ardent for its natural constitution. The wild pigeons of cold countries, are said to emigrate towards the south, on the approach of the winter. Pigeons exhibit a satisfactory proof of the superiority of the civilized over the savage or mere natural state, in their multitudinous increase and endless varieties, in a state of domestication, under the fostering care and all-subduing art of man. From their peculiar beauty and innocence, they have always ranked among the chief feathered favourites of mankind; and in the eastern countries, the original sources of religious superstition, the dove has ever been a great object of veneration, as an emblem of something divine.

But to proceed to a far more material point—the NATIONAL PROFIT of encouraging the breed of pigeons to any great extent, has long been the subject of much dispute, M. Duhamel, the apologist of these beautiful favourites, I apprehend, has not been a successful advocate. He avers, that pigeons do not feed upon green corn—that their bills have not sufficient power to dig for seeds in the earth, and that they only pick up scattered grains which would else be wasted, or become the prey of other birds. From the season of the corn appearing, he says, pigeons subsist upon the seeds of weeds, the multiplication of which they must, in consequence, greatly prevent. Another writer has of late introduced a story of the farmers in a certain district in England, who, finding their corn and pulse crops greatly reduced, attributed it to the vast quantity of pigeons kept among them, which, on such account, by a general resolution, they agreed to destroy. A few seasons afterwards, it seems, they found their land so exhausted, and their crops so eaten up by weeds, that they came to a general wish for their pigeons back again. Now this is either a lame story, or the farmers implicated were very lame farmers, as being ignorant how to weed their land,

without the assistance of instruments, the use of which must cost them so considerable a part of their crops.

No man, in the least acquainted with country affairs, but is fully aware of the immense damage done to the crops of corn, beans, pease, and tares, that is to say, the grand articles of human subsistence, by pigeons. Our best practical agricultural writers may be consulted on this head, but a sufficient proof of the fact is the reduction of dove cots throughout all countries where agriculture is best known, valued, and practised. Indeed, the feudal laws in favour of these birds, were a most cruel and fertile source of oppression. Every one will judge for himself of the degree of credit to be given to the following statement, extracted from Mr. Vancouver's valuable survey of the county of Devon.

Pigeons often fly to a great distance for their food, and when they can find corn to eat, seldom prey upon any thing else. They begin to eat corn about the middle of July, and rarely want the same food at the stacks in the straw-yards, or in the fields, until the end of barley sowing, which is about old May-day, and which includes a period of two hundred and eighty days, or better than three

quarters of the year; the rest of the time they live upon the seeds of weeds and bentings. It is somewhere stated that, in England and in Wales, there are twenty thousand DOVE HOUSES, averaging each at about one hundred pair of old pigeons. We will take this estimation at three-fourths, which will equal one million, one hundred and twenty five thousand pair of dove-house pigeons in England and Wales. These, to speak moderately, will consume, with what they carry home to their young, one pint of corn per pair daily, and which, for one hundred and forty days, being half the period they are supposed to subsist upon corn, amounts to one hundred and fifty-seven millions, five hundred thousand pints of corn consumed annually, throughout England and Wales, by these voracious and insatiate vermin, for in no other light can they be considered by the agriculturist. The amount and value of this consumption, when brought into the present price of wheat, rye, barley, oats, beans, and pease, and assuming that an equal quantity of each corn is thus consumed, but which is far from being the case, as wheat is not only the most inviting, but by far the most exposed to the ravages of these birds, both at the seed time and preceding harvest, will

stand thus — 157,500,000 pints = 4,921,875 Winchester bushels, which at 6s. per bushel, the present average price of the grain before enumerated, amounts to £1,476,562 10s. value of the agricultural produce of the country consumed in this manner. To which is to be added, the irreparable injury committed by pigeons in seed time, by picking up every grain of seed, wherever they alight, and the corn trod under and beaten out by their wings before harvest, not to forget the real damage they do to buildings by pecking the mortar from between the bricks, a mischief which may, however, always be obviated by the constant allowance of a salt-cat, which will also take their attention from the garden to which they may be otherwise destructive.

On a general view of the subject, it appears that the dove-house system has ever been one of extreme injustice, as well as impolicy, in point of national advantage, for in the first respect, it must unavoidably happen, that great flocks must be maintained at the expense of persons having no property in them. But as, certainly, neither the public nor individuals will consent to be deprived of the enjoyment of this ancient luxury, the fairest mode appears to be, the regular feeding of pigeons by their

proprietors, which, according to my experience, so attaches them to home, that there is often a necessity of driving them out for exercise. This plan should, of course, be more punctually observed in seed time, and towards the approach of the corn crops to maturity. With respect to that risk of damage from pigeons, which must unavoidably be incurred by the farmer, his insurance must consist in that vigilance, in which generally he is too defective.

Buffon enumerates upwards of thirty VARIETIES of the pigeon, which, according to his usual systematic plan, the convenience of which, perhaps, is rather more obvious than its accuracy, he derives from one root, namely, the STOCK DOVE, or common wild pigeon. All the varieties of colour and form which we witness, he attributes to human contrivance and fancy. There exist, nevertheless, essential specific differences in these birds, which seem rather attributable to the nature of the region, soil, or climate, to which they are indigenous, than to the art of man.

The STOCK DOVE, or original of the pigeon genus, in its natural or wild state, is thus described; of a deep blue and ash colour, the breast darkened with a fine changeable green

and purple; the sides of the neck of a reddish gold colour; its wings marked with two black bars, one on the quill feathers, and the other on the covert; the back white, and the tail barred near the end with black. The RING DOVE is yet held by naturalists to be distinct from the stock dove, and it would seem that the TURTLE DOVE is equally so from both.

In this country, the BLUE DOVE-HOUSE PIGEON is the most common, and the only WILD SPECIES are the ring doves, or wood pigeons, and the turtle doves which are to be found in all parts of South Britain, breeding during the spring and summer, and retiring to the deepest recesses of the woods, in the winter season, whence, probably, the turtle has been supposed to emigrate.

But both in the ancient and modern world, this beautiful and variegated genus of birds has been cherished by man, as a source of amusement, and of gratification to the eye, as well as of profit, in the article of provision for the table. Among certain of the nations of antiquity, moreover, pigeons were held sacred, and their lives no one dared assail. The useful qualification of MESSENGER, appertaining to the Asiatic and African species of the pigeon, is of high antiquity; and we read, in the

time of the Crusades, of an Arabian prince, who had a sort of telegraphic communication kept up in his dominions, through the instrumentality of pigeons, which carried letters, and were regularly relieved at the appointed posts. From those, doubtless, the breed celebrated in Europe, under the name of THE CARRIER, has proceeded.

In modern times, those varieties which are kept for the purposes of amusement and show, are styled FANCY BREEDS, and they form a distinct article of commerce in cities and great towns, the varieties, as they chance to be in fashion, bringing a considerable price. In London, the pigeon fanciers immemorially, I believe, have had a club, in which premiums are awarded, and the notable science of the fancy, through the medium of crossing colours and forms, is promoted and perpetuated. The chief objects of the fancy have hitherto been those varieties styled ALMOND (probably *ermine*) TUMBLERS, CARRIERS, and the birds with great crops, the most fashionable variety of which is the POUTING HORSEMAN. The specific merits of these breeds are indicated by their names. The tumbler exercises that faculty in the air, but is chiefly valued for his peculiar form and variegated plumage. The

carrier, as a messenger, cuts the air with almost inconceivable swiftness. This is the *Columba tabellaria*, the famous carrier or messenger, between *Aleppo* and *Alexandria* in *Egypt*. The pouter distends his crop to a size attractive to curiosity, and by his grotesque attitudes and familiarity with man, engages his attention.

Half a century ago, the pigeon fancy was in higher estimation and prosperity than at present; and the almond tumbler was then in the greatest vogue, such sums probably, as twenty or thirty guineas each, being the price of superior cocks of that breed, such as, at the present time, would not produce more than five. The pigeon shops generally seem the abode of poverty and misery, of which the poor unfortunate birds, crammed into baskets and narrow coops, obviously partake in the fullest measure. This fancy is a great favourite with certain of the lower classes in the Metropolis, and perhaps too generally injurious to their better interests. Their common method of entrapping stray pigeons, the property of other people, does not well consist with an honest principle, takes up too much of the time of those who practise it, and leads to loose and irregular habits. PIGEON SHOOTING is another purpose to which these birds are applied.

and of which annual details are to be found in the newspapers.

“Few people, even those accustomed to reflect on animal sufferings, are aware of those of the wretched town pigeon, harassed about from its first quitting the nest, through the rough hands of scores of unfeeling blackguards ; its feathers pulled, its wings *braced*, starved, and forced to fly against its inclination, matched, then unmatched, and its dearest ties broken ; sold, re-sold, exposed in cages, immured in cellars, coal-holes, and loaded with every misery, which can be inflicted by the wanton caprice, neglect, and beastly ignorance, of the two legged race, its tyrants.”—*British Field Sports.*

It is necessary to apprise the reader, that I have never had the honour to be initiated in the pigeon fancy, but have been simply a keeper of pigeons, for the use of the table, with some additional pleasure in their flight, and a degree of attention to those breeds which are of the largest size. On the subject of the fancy, the best authority with which I am acquainted, is a Treatise on Domestic Pigeons, published by Barry, of Fenchurch-street, in 1765, with very good plates, descriptive of the chief fancy varieties. That treatise has been preceded by Moor’s Columbarium. The only

breeds which I have kept, exclusive of the common, were TUMBLERS, HORSEMEN, CARRIERS, TURTLES, DRAGOONS, (commonly called DRAGONS,) and RUNTS; the latter, both Spanish and Leghorn, for their great size. As breeders, no fancy pigeons will, in general, equal the common dove-house kind, unless perhaps with great care and attention.

The PIGEON is monogamous, that is, the male attaches and confines himself to one female, and the attachment is reciprocal; the fidelity of the dove to its mate being proverbial. Young pigeons are termed SQUEAKERS, and begin to breed at about the age of six months, when properly managed: their courtship, and the well known tone of voice in the cock, just then acquired and commencing, are indications of their approaching union. Nestlings, whilst fed by the cock and hen, are termed SQUABS, and are at that age sold and used for the table. The dove-house pigeon is said to breed monthly, being well supplied with food, more particularly when the ground is bound by frost, or covered with snow. At any rate, it may be depended on, that pigeons of almost any healthy and well established variety, will breed eight or ten times in the year; whence it may be conceived, how immense

are the quantities which may be raised. Nevertheless, it is with difficulty that one can give entire credit to the calculations in such respect, on pigeons and rabbits; bringing to remembrance, to compare small things with great, the earths of gold, of the celebrated Doctor Price, which have been so greatly reduced in number and weight, by subsequent doctors. But I suppose we must not question the positive testimony of Stillingfleet, who asserts, that *fourteen thousand seven hundred and sixty pigeons, were produced from one single pair in the course of four years.* To class things of similar bearing together, it has been calculated, but I know not by whom, or on what practical ground, that *a single pair of rabbits may, in the same portion of time, namely, four years, produce one million, two hundred and seventy four thousand, eight hundred and forty of their kind.*

The first step towards pigeon keeping, is, undoubtedly, to provide a commodious place for their reception, of which I shall afterwards speak; the next, to provide the pigeons themselves. These will be had in pairs, but if not actually MATCHED, pains must be afterwards taken, to that end, that no time be lost; indeed, they may be matched according to the fancy of the keepers, for the purpose of

varying the colours, or with any other view. But it is necessary to give a caution on the subject of OLD PIGEONS, of which a bargain may offer, since the difficulty of retaining them is so great, indeed insuperable, without the strictest vigilance. Nothing short of cutting their wings, and confining them closely, until they have young to attach them to the place, will be a security ; and even afterwards, they have been known to take flight with the first use of their wings, and leave their nests. I have had several examples of this. Thence it is always preferable to purchase SQUEAKERS, or such as have not yet flown: these, being confined a short time, well fed, and accustomed gradually to the surrounding scenery, before they have acquired sufficient strength of wing wherewith to lose themselves, will become perfectly domesticated.

The DOVE-COTE, or pigeon-loft, as to its situation or extent, will necessarily depend on convenience, one GENERAL RULE, however, must be invariably observed,—that every pair of pigeons have two holes, or rooms, to nest in. Without this indispensable convenience there will be no security, but the prospect of constant confusion, breaking of eggs, and destruction of the young. Pigeons do well near

dwelling, stables, bake-houses, brew-houses, or such offices ; or their proper place is in the poultry-court. A dove-cote is a good object, situate upon an island, in the centre of a piece of water : indeed, such is a proper situation for aquatic poultry, and rabbits also ; and may be rendered extremely beautiful and picturesque by planting, and a little simple ornamental and useful building. Where pigeons are kept in a room, some persons prefer making their nests upon the floor, to escape the danger of the young falling out ; but in probability, this is to guard against one risk, and incur a greater number, particularly that of rats and other vermin.

The FRONT of the pigeon-room, or cote, should have a south-west aspect ; and if a room be selected for the purpose, it is usual to break a hole in the roof of the building for the passage of the pigeons, which can be closed at convenience. A platform is laid by the carpenter at the entrance, for the pigeons to alight and perch upon, with some kind of defence against strange cats, which will often depopulate a whole dove-house ; cats are yet necessary for the defence of the pigeons against rats and mice, as they will both destroy the birds and suck the eggs ; thence,

cats of a known good breed should be trained up familiarly with the pigeons. The platform should be painted white, and renewed as the paint wears off, white being a favourite colour with pigeons, and also most conspicuous as a mark to enable them to find their home. The boxes also should be so coloured, and renewed as necessary, for which purpose lime and water will be sufficient.

CLEANLINESS is one of the first and most important considerations: the want of it in a dove-cote will soon render the place a nuisance not to be approached, and the birds, both young and old, will be so covered with vermin, and besmeared with their own excrement, that they can enjoy no health or comfort, and mortality is often so induced. Ours were cleaned daily; thoroughly once a week, a tub standing at hand for the reception of the dung, the floor covered with sifted gravel, often renewed. Pigeons are exceedingly fond of water, and, having a prescience of rain, will wait its coming until late in the evening, upon the house-top, spreading their wings to receive the refreshing shower. When they are confined in a room, they should be allowed a wide pan of water, to be often renewed, as a bath, which cools, refreshes, and assists

them to keep their bodies clear of vermin. In the attendance upon pigeons, caution is necessary with respect to their fighting, to which they are more prone than might be expected, often to the destruction of eggs or young, or driving the weakest away.

The common BARREL DOVE-COTE needs no description, at the same time is adapted to every situation, in which it is desirable to keep pigeons for ordinary use. To return to the ROOM, or LOFT; the shelves should be placed sufficiently high, for security against vermin, a small ladder being a necessary appendage. The usual breadth of the shelves is about twenty inches, with the allowance of eighteen between shelf and shelf, which will be sufficient not to incommode the tallest pigeons. Partitions between the shelves may be fixed at the distance of about three feet, making a blind, by a board nailed against the front of each partition, whence there will be two nests in the compass of every three feet, so that the pigeons will sit in privacy, and not liable to be disturbed. Or a partition may be fixed between each nest;—a good plan, which prevents the young from running to the hen, sitting over fresh eggs, and perhaps occasioning her to cool and addle them: for when the

young are about a fortnight or three weeks old, a good hen will leave them to the care of the cock and lay again.

Some prefer breeding-holes entirely open in front, for the greater convenience in cleaning the nests; but it is from those that the squabs are likely to fall, thence a step of sufficient height is preferable. The tame pigeon seldom taking the trouble to make a nest, it is better to give her one of hay, which prevents her eggs from rolling. Or a straw basket, or unglazed earthen pan, may be placed in every nest, apportioned to the size of the pigeons you breed. A pan of three inches high, eight inches over the top, and sloping to the bottom like a basin, will be of sufficient size for a TUMBLER, or small pigeon, whilst one of double those dimensions will be required for a large RUNT. A brick should always be placed in contiguity to the pan, to enable the cock and hen to alight with greater safety upon the eggs.

The PIGEON-TRAP, on the house-top, is the well-known contrivance of those London rascals, who lie in wait, as has been said, to entrap the property of others. A trap of another description, and for a very different purpose, is sometimes used; it is an area, on

the outside of a building, for the purpose of confining in the air valuable breeds of pigeons which cannot be trusted to flight. Some are erected to the extent of twenty yards long and ten yards in width, with shelves on every side for the perching of the pigeons; thus they are constantly exercised in the air, retiring at their pleasure to the room or loft within.

Very convenient baskets are now made of the cradle form, with partitions, or separate apartments. They serve for the carriage of pigeons, for matching, or putting them up to fatten, or for any of the usual purposes. I have seen them lately, in the basket-shops on the Greenwich road, two or three miles from London.

FOOD and WATER should be given in such way, as to be as little as possible contaminated with the excrement, or any other impurity. My pigeons having been constantly attended, we have never found the need of any other convenience than earthen pans; but there have been ingenious inventions for this purpose, of which the MEAT-BOX and WATER-BOTTLE following are specimens. The meat-box is formed in the shape of a hopper, covered at the top to keep clean the grain, which descends into a square shallow box. Some

fence this with rails or holes on each side, to keep the grains from being scattered over ; others leave it quite open that the young pigeons may the more easily find their food.

The WATER-BOTTLE is a large glass bottle, with a long neck, holding from one to five gallons, its belly shaped like an egg, that the pigeons may not light and dung upon it. It is placed upon a stand, or three-footed stool, made hollow above, to receive the belly of the bottle, and let the mouth into a small pan beneath : the water will so gradually descend out of the mouth of the bottle as the pigeons drink, and be sweet and clean, and always stop when the surface reaches the mouth of the bottle.

TO MATCH OR PAIR a cock and hen it is necessary to shut them together, or near and within reach of each other ; and the connexion is generally formed in a day or two. Various rules have been laid down, by which to distinguish the cock from the hen pigeon ; but the masculine forwardness and action of the cock, is for the most part distinguishable.

INCUBATION. The great increase of domestic pigeons does not proceed from the number of eggs laid by them, but from the frequency of their hatching. The hen lays but two

eggs and immediately proceeds to incubation. Having laid her first egg, she rests one day, and, on the next, lays her second egg. They usually stand over the first egg, not sitting close until they have two, whence, both the young are hatched nearly at the same time : there are some exceptions, however, to this rule of nature, and the hen having sat close at first, one young bird may be hatched a day or two before the other. They often spoil their first eggs from inexperience.

The PERIOD of incubation is NINETEEN or TWENTY days from laying the first egg, and SEVENTEEN or EIGHTEEN from the last. The labour of sitting is equally divided between the cock and hen, excepting that the hen always sits by night. She is relieved in the morning by the cock, which sits during the greater part of the day. The business of feeding the young is also divided between the parents; and the cock has often brought up the young, on the accidental loss of his mate. Should the eggs not be hatched in due time, from weakness, some small assistance may be necessary to extricate the bird from the shell; or should they be addled, it is generally held necessary to provide the cock and hen with a borrowed pair of young, or at least one to feed

off their soft meat, which else may stagnate in their crops and make them sick: but as young ones for this purpose may not always be at hand, the exercise of flying, fresh gravel, and those saline compositions generally given to pigeons, are the proper remedy. Addled, or rotten eggs, should be immediately removed.

Pigeons are extremely liable to be lost by accident, and that which is unaccountable, although they will find their home from such great distances, they often nevertheless lose themselves in their own neighbourhood. Should a cock or hen be lost during incubation, the eggs will be spoiled in twenty or thirty hours, and may then be taken from the nest; but if the accident happen after hatching, the single parent left will feed the young.

SOFT MEAT is a sort of milky fluid or pap secreted in the crop of pigeons, by the wise providence of nature, against the time when it will be wanted for the nourishment of their young. In all probability, from instinct, the pigeons eat a greater quantity at this time, and the grain goes through a certain process in their crops, which produces the soft meat or pap in question. This they have the power of throwing up at will; and, in feed-

ing, they inject it from their own bills into those of the young ones, which are taken into their own. This kind of feeding continues six or seven days, when the old ones begin to mix some harder food with it, until at length they feed with whole grain. When the time approaches for the hen to lay, the cock is often seen driving her from place to place, not suffering her to rest any where but in her nest, apparently from an instinctive apprehension that she may drop her egg in an improper place.

Food. Pigeons are entirely granivorous, and very delicate and cleanly in their diet; they will sometimes eat green vegetables, in particular warm salads, and are extremely fond of seeds. **TARES**, and the **SMALLEST** kind of **HORSE BEANS**, commonly called pigeon beans, are both the best and cheapest food for pigeons, but the pulse should always be old, that is to say, of the previous year; as the new will scour pigeons, as well as any other kind of live stock. Seeds are occasionally given to pigeons, as a warming and stimulant diet; but according to my experience they greatly prefer rape and canary to hemp-seed. It has been remarked, that beans, sodden in salt-water, scour pigeons equally with new beans, and, in a voyage, suf-

fering them to drink sea water will soon kill them; although so generally benefited by salt, an excess of it is fatal, as it is also to vegetation, promoted as that is by a moderate quantity. In most publications on the subject of pigeons, a dangerous mistake has been made in a term applied to beans. Small *tick* beans are recommended, instead of small horse-beans. Now, the tick or *kidwell* (in the western phrase), are the larger of the two common field varieties, and beside being inferior in quality, are too large for pigeons, which have been sometimes choked even with the common sized horse-beans; on which account, the smallest possible should be procured, and whence they are termed in the market accounts, "pigeon beans." Pease, wheat, and buck-wheat, or brank, are eaten by pigeons; but should be given only in alternation, not as a constant diet. The same of seeds. They yet prefer wheat. The strong scent of cummin and flavour of coriander seeds are said to have an alluring effect upon the olfactory nerves and palate of these birds; as also the scent of *asa-fœtida*, and other powerfully odoriferous drugs; and that the use of fumigations of such, in the dove-cote, will not only attract the pigeons to

their home, but allure strangers, which may be wandering in search of a habitation.

The last dietetic, or rather, perhaps, medicinal article necessary to be described, is the SALT-CAT, so called from some old fancy of baking a real cat with spices, for the use of pigeons, which, however, I never observed to eat animal food. In compliance with this custom, I caused to be placed in the middle of the pigeon-loft a dish of the following composition: loam, sand, old mortar, fresh lime, bay salt, cummin, coriander, caraway seed, and all-spice, moistened into a consistence with urine. The pigeons were constantly pecking at this, and were in a constant state of good health; how much of which may be attributed to the use of the cat, I cannot determine; but, certainly, they are extremely fond of it, and if it have no other merit, it prevents them from pecking the mortar from the roof of the house, to which otherwise they are much inclined. The cat was mixed and heaped up in the dish, a piece of board being placed upon the summit, to prevent the birds from dunging upon it; when become too hard, it was occasionally broken for them.

The regular old formula for this cat is as follows: gravel or drift-sand, unctuous loam,

the rubbish of an old wall, or lime, a gallon of each—should lime be substituted for rubbish, a less quantity of the former will suffice—one pound of cummin-seed, one handful of bay salt; mix with stale urine. Inclose this in jars, corked or stopped, holes being punched in the sides, to admit the beaks of the pigeons. These may be placed abroad.

Many fanciful and groundless tales may be found in old books, relative to the MEDICINAL and REMEDIAL properties of almost every part of the pigeon; thus much, however, may be relied on, their flesh, when young and in good condition, is a nourishing and stimulant diet; that of the full-aged pigeon more substantial, but harder of digestion, and, in a considerable degree, heating. The general rule of colour affecting quality in the flesh, holds good in tame pigeons. The black and dark-feathered are proportionally dark or brown fleshed, of high flavour, inclining to the game bitter of the wild pigeon. The light colour in the feathers, denotes light and delicate flesh. Their DUNG is of an extremely heating and drying quality, whether as a manure, or for medicinal purposes. It was, in former days, a principal ingredient in nitre-beds, when that article was almost entirely manufactured at home.

174 *Varieties—Calculations—New Guinea.*

CARRIERS, HORSEMEN, and DRAGOONS, are travellers or messengers, and I have occasionally seen TUMBLERS turned off, at the distance of forty miles from home. The carrier, it is said, has performed a journey of forty miles in an hour and a half, and of even ninety miles in three hours. A dragoon has flown seventy-six miles in two hours and a half: but this fancy of flying pigeons is in no country, it seems, so much in vogue as formerly. The admired qualities in the TUMBLER are excessive high flight, so as to be almost imperceptible to the keenest eye, in fine and clear weather; perseverance in their flight for many hours together, and tumbling over and over repeatedly during their ascent and descent.

The following imperfect account of pigeons used and sold from a Berkshire dove-cote, in 1807, is extracted from the Survey:—147 used in the house, at 5s. per dozen, 3l. 1s. 3d. —Sold 550 for 10l. 15s. 10½d.—13l. 17s. 1½d. The DUNG estimated at one-fourth of their return per annum.

NEW GUINEA pigeons are said, in some Lady's Voyage to India, nearly to equal the turkey in size; of a slate colour, with a crest of gauze feathers, some inches high, in the

form of a fan; the iris of the eye bright vermilion.

By my memoranda, in 1801, I observe, that sixty-five pairs of old pigeons, and one hundred and forty squeakers of all sizes, regularly fed, consumed in one week, five pecks of the smallest beans, and ten quarts of seeds. The above old stock, without any young, consumed about half the quantity.

From the same. *FAN-TAILS* or *SHAKERS*, the head always in motion, are a beautiful stock, and good breeders, but so stupid and silly, as scarcely to be capable of taking care of themselves, or finding their home. *RUNTS*, although so much larger, breeds as fast and equally forward as *Tumblers*. The duration of life in the pigeon is said to extend to about twenty years, and is deemed full aged when the wings are full of the quill feathers.

SECTION XIII.

Rabbits.

RABBITS are animals proper to be allowed in a wild state, in those countries only where are extensive wastes, and where corn and other farming productions are not at a high price: in populous and highly cultivated regions, they are a great and wasteful nuisance, and proofs are before the public, only a few years old, of nearly the whole produce of a farm being devoured by them, to the ruin of the tenant. This farm was situated near extensive preserves; but it is equally unfortunate for a farmer to be fixed near to, or within some miles distance of a rabbit-warren, since they will travel to a great distance, to feed either upon corn or vegetables, and if the soil and corn be to their liking, will always remain in sufficient numbers to stock a new district. At the same time, they are a good and profitable stock, domesticated; infinitely more prolific, under good management, than in

their wild and exposed state, and their dung is extremely valuable upon a farm.

The old writers, perhaps, rather overvalued the profits of this stock. Rabbit-keeping is practised by a few individuals in almost every town, and by a few in almost every county; but thirty or forty years ago, there were one or two very considerable feeders near the metropolis, keeping each, according to report, from fifteen hundred to two thousand breeding does. These large concerns have ceased, it seems, long since, and London receives the supply of tame, as well as wild rabbits, chiefly from the country.

The only considerable rabbit-feeders at present, of whom I have heard, are two gentlemen, the one resident in Oxfordshire, the other in Berks. The former fed some hundreds a few years since, and then, it was said, intended to double his stock. The HUTS were placed in a small building set apart for that purpose. The then stock produced one load of dung per week, two loads of which were sufficient to manure an acre of land. Three dozen of rabbits per week were sent to the London market, but keep and attendance reckoned, no other profit accrued, excepting the dung, the price of which used to be eight-

pence per bushel, and I believe thirty-six bushels are reckoned a load. The Berks gentleman, according to the survey of that county, feeds white rabbits on account of the superior value of their SKINS, from their application of late years to the purpose of trimmings. Twenty does and two bucks were my largest stock.

The RABBIT-HOUSE should stand upon a dry foundation, and be well ventilated. Exposure to too much humidity, whether externally or internally, is fatal to rabbits, which are liable to the rot like sheep, and from the same causes. The rains of 1799 which continued nearly four months, destroyed my stock of rabbits, which were huttet in a boarded shed, not well defended from the cold and moist air. Ventilation and fresh air are also necessary, where considerable numbers of these animals are kept, which will not else remain healthy, or prosper for any length of time : and even sudden mortality may ensue, from impure and stagnant air. A thorough draught or passage for the air, is thence of great use, and should be contrived in the building, with the convenience of shutting such opposite windows or doors in cold and wet weather.

The HUTS or HUTCHES are generally placed one above another, to the height required by

the number of rabbits, and the extent of the room. Where a large stock is kept, to make the most of room, the hutches may be placed in rows, with a sufficient interval between, for feeding and cleaning, instead of being joined to the wall, in the usual way. It is preferable to rest the hutches upon stands, about a foot above the ground, for the convenience of clearing under them. Each of these hutches, intended for breeding, has two rooms, a feeding and a bed-room. Those are single, for the use of the WEANED rabbits, or for the BUCKS, which are always kept separate. When much green meat is given, rabbits make a considerable quantity of urine, and I have sometimes seen occasion to set the hutches sloping backwards a few degrees, a very small aperture being made the whole length of the floor to carry off the urine. A sliding door in the partition between the two rooms, is convenient for confining the rabbits during the operation of cleaning; which indeed, is a good argument for having all the hutches double, it being more troublesome to clean out a room with a number of rabbits in it, than with only one. It must not be forgotten, that the teeth of rabbits are very effectual implements of destruction to any thing not hard enough to resist them, and

their troughs should be bound with something less penetrable than wood. As they are apt to scratch out their food, and dung in it, I have often thought it might be useful to adopt the feeding troughs with moveable boards, as well for rabbits as hogs. The floor of the hutches should be planed smooth, that wet may run off, and a common hoe with a short handle, and a short broom, are most convenient implements for cleaning these houses. The object being to obtain the dung pure, for sale, no litter should be allowed ; but on a farm where the dung is expended at home, the hutches should be littered with refuse hay or straw, perfectly dry. The rabbit-house to contain a tub for the dung, and a bin, for a day's supply of hay, corn, roots, or other food, which should be given in as fresh a state as possible.

There are other modes of confining rabbits for breeding, in which they are left to their liberty, within certain bounds ; for example, an artificial mound walled in, in which they burrow and live as in the natural state ; and an island as described in Mr. Young's Annals ; methods which are certainly ornamental and pleasurable, as well perhaps as more for the comfort of the animals ; but surely not so profitable to the owner as hutching, in which

mode, also, they may be preserved, with due care, in the highest state of health. On this head I find the following remark in my memoranda for the year 1805 : *Rabbits at large, must always suffer more in point of profit, by loss of number, than they gain, by cheaper feeding, exclusive of the mischief they do ;* and this principle operates proportionally in limited enlargement, as in the unlimited upon the warren. They are quarrelsome and mischievous animals ; and the bucks, when at liberty, destroy a considerable part of the young. A run abroad, indeed, for young rabbits, until a certain age, might be beneficial if *growth* were the object ; but all rabbits must be separated at the age of puberty, or as soon as they become fit for breeding ; they will else tear each other to pieces.

As to the VARIETIES of FORM and COLOUR, in the rabbit, the short-legged, with width and substance, generally few in number, and to be obtained only by selection, are the most hardy, and fatten most expeditiously, taking on fat both internally and in the muscular flesh. They have besides the soundest livers, the rabbit being generally subject to defects of the liver ; they are the smallest variety. There is a very large variety of the hare colour, ha-

ving much bone, length and depth of carcase, large and long ears, with large eyes, resembling those of the hare. They might well be taken for hybrid, or mules, but from the objection of their breeding. Their flesh is high coloured, substantial, and more savoury than that of the common rabbit: and they make a good dish, cooked like the hare, which, at six or eight months old, they nearly equal in size. The large white, and yellow and white species, have whiter and more delicate flesh, and cooked in the same way will rival the turkey. With respect to colour, I have always preferred the wild colour, and black, finding the skins of full as much worth as the white. The TURKISH, OR FRENCH RABBIT, with long white fur, differs little from the common varieties; nor did I find their skins of more value, either for sale or home use. I have been in the habit of drying the skins, for linings of night-gowns, and other domestic purposes; but have always found reason to prefer the short, close fur. The large above mentioned,—indeed any peculiar varieties—must be sought among the London dealers.

Of late years, in London, the term *smut*, has been applied as a mark of distinction in the rabbit. Thus there are single and double

smuts. The smut consists of a black spot on the side of the rabbit's nose : when there are two black spots, one on each side of the nose, it constitutes a double smut. Generally, the rabbits are prized for the number of these black spots upon the head and body, and for the fineness and length and size of the ears, which occasions their falling about the head, in a manner different from the common rabbit. Black and tortoiseshell are the favourite colours.

The DOE will breed at the age of six months, and her period of GESTATION is thirty or thirty-one days. It should be premised, that the buck and doe are by no means to BE LEFT TOGETHER; but their union having been successful, the buck must be immediately withdrawn, and the doe tried again in three days: in fact, with rabbits, this business is conducted on the same principle as in the stud. Like chickens, the best breeding rabbits are those kindled in March. Some days before PARTURITION, or kindling, hay is to be given to the doe, to assist in making her bed, with the flue, which nature has instructed her to tear from her body for that purpose. She will be at this period seen sitting upon her haunches, and tearing off the flue, and the hay

being presented to her, she will, with her teeth, reduce and shorten it to her purpose.—Biting down of the litter or bed, is the first sign of pregnancy. The number produced, generally between FIVE and TEN; and it is most advantageous always to destroy the weak or sickly ones, as soon as their defects can be perceived, because five healthy and well-grown rabbits are worth more than double the number of an opposite description, and the doe will be far less exhausted. She will admit the BUCK again with profit at the end of six weeks, when the young may be separated from her and WEANED. Or the young may be suckled two months, the doe taking the buck at the end of five weeks, so that the former litter will leave her about a week before her next parturition. A notion was formerly prevalent, of the necessity for giving the buck immediately after the doe had brought forth, lest she should pine, and that no time might be lost; and if it were intended that no time might be lost in destroying the doe, such, indeed, would be the most successful method. Great care should be taken that the doe, during her gestation, be not approached by the buck, or indeed by any other rabbit; as, from being harassed about, she will almost

certainly CAST her young. One doe in a thousand may DEVOUR her young; the sign that she ought to be otherwise disposed of. Some does admit the buck with difficulty, although often apparently in season; such should be immediately fattened off, since it can never be worth while to keep any individual for breeding of a stock, to be produced in such multitudes, against which there lies objection. Should the doe be WEAK on her bringing forth, from cold caught or other cause, she will drink beer-caudle, as well as any other lady; or warm fresh grains will comfort her; a malt mash; scalded fine pollard, or barley-meal, in which may be mixed a small quantity of cordial horse-ball.

With due attention to keeping them warm and comfortable, and guarding against any sudden impression from cold, and more particularly moist air, and with the aid of the best and most nourishing food, I have bred rabbits throughout the WINTER, with nearly equal success as in the summer season. But, in truth, their produce is so multitudinous, that one might be well satisfied with four or five litters, during the best part of the year, giving the doe a winter fallow.—Even four litters would, upon the lowest calculation, produce

TWENTY YOUNG ONES ANNUALLY to each doe—equal to an annual TWO THOUSAND from a stock of ONE HUNDRED DOES. I have no experience of does, as breeders, beyond the FIFTH year: the BUCK will come into use at six, or even four months old, and be in perfection from the age of two to three years.

Upon a regular plan, and with sufficient attendance, it is better to FEED three times than twice a day. The art of feeding rabbits with safety and advantage, is, always to give the upper hand to dry and substantial food. Their nature is congenial with that of the sheep, and the same kind of food, with little variation, agrees with both. ALL WEEDS, and the refuse of vegetation, should be banished from Rabbit feeding. Such articles are too washy and diuretic, and can never be worth attention, whilst the more solid and nutritious productions of the field may be obtained in such plenty, and will return so much greater profit. Rabbits may, indeed, be kept, and even fattened upon roots, good green meat, and hay; but they will pay for corn; and this may be taken as a general rule:—*Rabbits which have as much corn as they will eat, can never take any harm from being indulged with almost an equal portion of good substantial vegetables.* However, the test of

health is, that their dung be not too moist. Many, or most, of the town feeders never allow any greens at all; the reason, I suppose, because they feed almost entirely on grains. The CORN proper for rabbits:—oats, peas, and wheat; pollard, and some give buck wheat. The GREENS and ROOTS, the same as our cattle crops, namely carrots, Jerusalem artichokes, and if potatoes, baked or steamed. Lucerne, cabbage-leaves, clover, tares, furze. I have had them HOVEN, from eating rape; and not improbably, mangold-wurtzel might have a similar effect. Clover and meadow hay, pea and bean straw.

Rabbits are generally sold from THE TEAT, but there is also a demand for those of larger size, which may be fattened upon corn and hay, with an allowance of the best vegetables. *The better the food, the greater weight, better quality, and more profit*, which I apprehend to be generally the case in the feeding of all animals. Some fatten with grains and pollard. I have tried all wheat, and all potatoe oats, comparatively; but could find no difference in the goodness of the flesh. The rabbit's flesh being dry, the allowance of succulent greens may tend to render it more juicy; and I suppose the old complaint of the dryness of the

flesh in Devon beef entirely fed with hay, might be remedied in the same way. Rabbits are in perfection for feeding at the FOURTH or SIXTH month; beyond which period, their flesh becomes more dry and somewhat hard. It requires THREE months, or nearly so, to make a rabbit thoroughly fat and ripe; half the time may make them eatable, but by no means equal in the quality of the flesh. They may yet be over fattened, as appears by specimens exhibited a few years since at Lord Somerville's show, which were loaded with fat without and within, like the best feeding sheep.

The flesh of the rabbit is esteemed equally digestible as that of fowls, and equally proper for the table of the invalid.

CASTRATED rabbits might be fattened, no doubt, to the weight of upwards of ten pounds, at six or seven months old. I have not succeeded at castrating the rabbit, but am informed it is successfully practised in the land of capons, namely, Sussex, near Chichester, where, on the average, not one in three hundred is lost by the operation, which is performed at five or six weeks old. With respect to QUANTITIES of corn consumed in fattening;—August, 1813, killed a young buck, which

weighed three pounds, fit for the spit; it was put up in good case, and was only one month in feeding, consuming not quite four quarts of oats, with hay, cabbage, lucerne, *bunias orientalis*, and chicory; the skin, silver and black, worth four pence.

IN SLAUGHTERING full-grown rabbits, after the usual stroke upon the neck, the throat should be perforated upwards towards the jaws with a small pointed knife, in order that the blood may be evacuated, which would otherwise settle in the head and neck. It is an abomination to kill poultry by the slow and torturing method of bleeding to death, hung up by the heels, the veins of the mouth being cut; but still more so the rabbit, which in that situation utters horrible screams. The ENTRAILS of the rabbit, whilst fresh, are said to be good food for fish, being thrown into ponds.

The rabbit is a CARESSING animal, and equally fond, with the cat, of the head being stroked; at the same time, it is not destitute of courage. A whimsical lady admitted a buck rabbit, named as above (Corney Buttercup,) into the house, where he became her companion for upwards of a twelvemonth. He

soon intimidated the largest cats so much, by chasing them round the room, and darting upon them, and tearing off their hair by mouthfuls, that they very seldom dared to approach. He slept in the lap by choice, or upon a chair, or the hearth-rug, and was as full of mischief and tricks as a monkey. He destroyed all rush-bottomed chairs within his reach, and would refuse nothing to eat or drink, which was eaten or drank by any other member of the family.

No live stock is less liable to DISEASE than the rabbit, with regular and careful attention, such as has been pointed out, so that any sudden and accidental disorder is best and most cheaply remedied by a stroke behind the ears. But want of care must be remedied, if at all, by an opposite conduct, and improper food exchanged for its contrary. Thus if rabbits become POT-BELLIED in the common phrase, from being fed on loose vegetable trash, they must be cured by good hard hay and corn, ground malt or pease, or any substantial and absorbent food. Their common liver complaints are incurable, and when such are put up to fatten, there is a certain criterion to be observed. They will not bear to be pushed be-

yond a moderate degree of fatness, and should be taken in time, as they are liable to drop off suddenly. The dropsy and rot must be prevented, as they are generally incurable; nor is a rabbit worth the time and pains of a probable cure. Of the 'madness in tame conies,' on which our old writers hold forth, I know nothing.

SECTION XIV.

On the Diseases of Poultry and Pigeons.

THE diseases of our domestic animals kept for food, are generally the result of some error in diet or management, and should either have been prevented, or are to be cured most readily and advantageously by an immediate change, and adoption of the proper regimen. When that will not succeed, any farther risk is extremely questionable; and particularly with respect to poultry, little hope can be derived from medical attempts. In fact, the far greater part of that grave and plausible account of diseases and remedies, which is to be found in our common cattle and poultry books, is a farrago of sheer absurdity; the chief ground of which, it is to be apprehended, is random and ignorant guess-work.

COMMON FOWLS.—Of these, the most frequent diseases, real or presumed, are thus named: the PIP, a white skin or scale growing upon the tip of the tongue. The CURE,—

tear off the skin with your nail, and rub the tongue with salt. Of this I know nothing, and could never hear any thing with certainty. Imposthume upon the rump is called the *roup*. This is directed to be opened, the core thrust out, and the part washed with salt and water. The *roup* also seems a general term for all diseases, but is chiefly applied to CATARRH, to which gallinaceous fowls are much subject. The FLUX, and its opposite, CONSTIPATION. Cure the first with good solid food; the other with scalded bran or pollard, mixed with flet or skimmed milk, or pot-liquor, a small quantity of sulphur being added, if needful. VERMIN, generally the consequence of low keep, and want of cleanliness. The remedy obvious; not to forget sand and ashes for the fowls to roll in.

But the chief disease to which chickens and fowls are liable, originates in changes of weather, and the variation of temperature, and when the malady becomes confirmed, with running at the nostrils, swollen eyes, and other well-known symptoms, they are termed ROUPY. The discharge becoming fetid, like the glanders in horses, the disease is supposed to have arrived at the stage of infection; and whether so or not, it is certainly proper for clean-

liness sake, to SEPARATE the diseased from the healthy, whence the necessity of an INFIRMARY in a regular poultry establishment. Rousy hens seldom lay, and their eggs are scarcely wholesome. The eggs taken from a hen which died of the roup, were black, and in a state of putrefaction.

Chickens are frequently, and chiefly in bad weather, seized with the CHIP, in about three weeks from their hatching, when all their beauty of plumage vanishes, and they put on their long great coat, or rather shroud, and sit *chipping*, pining, and dying in corners; always apparently in torture, from a sense of cold, although to the touch they seem in a high state of fever. This disease seldom admits of remedy; but I have tried mustard in water, crams, with a small quantity of black pepper, and afterwards nitre, given in the water. The sun, or warmth in the house, by the fire-side, are the best remedies. The fire is a great restorative of all young, indeed of all, animals.

For grown fowls affected by the roup, warm lodging is necessary, and even the indulgence of the fire, or the warmth of the bake-house. Wash the nostrils with warm soap and water, as often as necessary, and the swollen eyes

with warm milk and water. Afterwards bathe the swollen parts with camphorated spirit, or brandy and warm water. As a finish to the cure, give sulphur in the drink, or a small pinch of calomel in dough, three times in a week. The common symptom of GAPIING, during this influenzal disease, induced the learned, a few years past, to coin a new disease under the name of the GAPES, which they conveniently attributed to a species of *fasciola*, infecting the *trachea*, or wind-pipe, of poultry. For the roup and other diseases, more at large, see an article in the Monthly Magazine of December, 1810. Pheasants and partridges, in their wild state, are also liable to the gapes, and from the same atmospheric cause. This symptom was observed very prevalent among them during the very variable summer, 1821.

The head being raw, and the eyes blinded from fighting, wash the eyes as before, and the head, which, after washing, may be alternately, according to need, dressed with fresh butter, and with brandy, in which has been infused two or three drops of laudanum. A hen sate about in corners, and neither ate, drank, nor evacuated, yet looked full and not diseased. Her crop was totally obstructed.

On an incision being made, from the bottom upwards, a quantity of new beans was found, which had vegetated. The wound being stitched properly, immediately healed, and the hen suffered little inconvenience. A cock's SPURS being too long, impeding his walk, and wounding his legs, they should be cut carefully with a sharp pen-knife, but not too near the quick; every three months.

GEESE. The GARGLE in geese, is described as a stoppage in the head. Most probably an affection of cold. They direct to house the patients for a time, and to give garlic fasting, two or three long balls; the garlic, three or four cloves, to be beaten in a mortar with fresh butter. Toast and ale, with a little confinement, will probably succeed equally well.

DUCKS. Young ducks at the age of two or three weeks will drop off suddenly, without any apparent cause, or sign of disease. It is probably occasioned by too early liberty abroad and in the water.

PIGEONS, also, are subject to the ROUP, understanding by that term, a cold, or catarrh, the symptoms of which are too visible in the miserable creatures exposed to sale hung up in baskets, in all weathers and currents of air.

Garlic in pills, and rue given in water, are the general remedies. Sheltered places, with room for exercise, and warm seeds, or cordial horse-ball in their food, form the best dependence. They are in course most liable at MOULTING TIME, a season at which all kinds of poultry should be carefully sheltered and attended.

WOUNDS upon the head, or the WATTLES of Carriers and Barbs, to be treated as already directed for chickens; but if the parts should CANKER, as it is styled, wash with stale urine, or alum and water, or any spirit and water; or make an unguent of burnt alum and honey; or mix twenty grains of red precipitate with half an ounce of honey; or dissolve five grains of vitriol, in half a table-spoonful of vinegar, and mix with the above, alum and honey. Pigeons are liable to several peculiar internal complaints of weakness, for which it is probable that prevention, or subsequent care, are the only remedies. A variety of remedies are offered for vermin in pigeons, such as staves-acre, tobacco, snuff, and similar articles, but the only effectual one is strict CLEANLINESS.

Croppers, particularly, are apt to GORGE themselves, and all young pigeons are occasionally subject to have the crop obstructed by

receiving too great a quantity of food, and too speedily, for digestion. The first or old pigeons in this state, may be treated as already directed for fowls. The crops of the squabs being gently stroked upwards with the fingers, will generally be cleared a bean at a time. The VERTIGO, MEGRIM, or GIDDINESS in pigeons, arises probably from some error of diet or keeping, and I know of no remedy, but confinement, with room for exercise, fine water being allowed, with chalk and saffron infused. For SCOURING, forge-water, or rust of iron in pellets of dough ; afterwards, sulphur in the water. In ERUPTIONS, sulphurated water. If any external application is necessary, the unguents already directed will be proper. For wounds in the FEET, Venice turpentine spread on brown paper. The FLESH WEN, may be either opened, or cut off, the part being washed with alum water, &c. or the dressings used as before directed. EXOSTOSIS or the BONE WEN upon the joints, somewhat similar to splents upon the shank of the horse, is deemed incurable. The best cure, to fatten for the table. The CORE, a hard substance of a yellowish colour mixed with red, and resembling the core of an apple, is sometimes found in the anus or vent, and has been known in

the œsophagus, or gullet of a pigeon. This will ripen and mature, and may be then discharged, dissected, or drawn out. A purge of a very small quantity of tobacco is directed in this case, but on what grounds I am not informed.

In keeping poultry of all kinds, it ought to be a first consideration that there be sufficient ROOM and AIR for the number kept ; otherwise, they will be, in the vulgar phrase, *stencched*, that is, infected by the impurity of their own atmosphere, and become, in consequence, subject to frequent mortality.

SECTION XV.

Swine.

Sus. PORCUS—the SWINE, PIG, or HOG, is too well known in all countries to need a repetition of its generic description. It is one of the most useful, and perhaps the most profitable, of all the domestic animals, its flesh being greatly conducive to the purposes of luxury, but still more universally to the support of human life, in the laborious state. This animal is the general collector of offal and waste, whether in town or country, thereby foraging for a considerable part of its subsistence, the extra cost of which it moreover amply repays. Its flesh, second probably to beef, is the most substantial of human aliment, and may be eaten most frequently without disgust. The solidity of swine's flesh, says the author of the General Treatise on Cattle, is apparent on a comparison of the external superficies of a fat hog, with that of a fat sheep or bullock, the dimensions of which latter animal, must be so

much more extensive to equal the weight of the first; which is also aptly illustrated by the well-attested examples of individual hogs, fed to the enormous weight each, of one hundred, and even one hundred and eighty-two stones, of eight pounds to the stone. This is also said to differ from all other land animals, in the circumstance that the adipose substance, or fat, entirely covers his muscular flesh, in one continued layer or stratum. The upright and pendant ear form specific distinctions in the swine, the latter being the general indication of larger size. The singular variety not dividing the hoof, which were occasionally to be found in the neighbourhood of Windsor, some years since, is now probably extinct.

USES.

The well-known culinary uses of swine's flesh, are—as ROASTING PIG AND PORK—FRESH AND PICKLED PORK—BACON—HAMS—BRAWN—SAUSAGES of various kinds—PUDDINGS of the blood; whilst the LARD is valuable both for kitchen and medicinal use, and the SKIN, BRISTLES, AND HAIRS, for the purposes of manufacture.

SPECIES AND VARIETIES OF THE GENUS.

The SPECIES are Asiatic, African, and Eu-

ropean, with which, perhaps, may be included the American PECCARY, bearing its navel on its back. The Æthiopian swine is large in a wild state, and has wattles under the eyes. The VARIETIES produced in this country, have generally originated in crosses with our indigenous breed, from the three grand specific divisions above cited: chiefly from the CHINESE, the black AFRICAN, the SPANISH and PORTUGUESE, of nearly the same colour, all more or less bare of hair; the red, or more properly yellow ITALIAN, and the WILD SWINE of the neighbouring continent. The motive for these foreign crosses has been to abate and reduce the redundant size and bone of our native stock, and to substitute superior delicacy of flesh and aptitude to fatten; both which views have succeeded, the latter, in the judgment of the author above quoted, in an inordinate degree.

BRITISH VARIETIES.

For our VARIETIES of pigs at large, I repeat my reference to Lawrence's General Treatise on Cattle, the only book, probably, in which they have ever been enumerated and described, the author himself having been a considerable breeder and feeder. It will be sufficient to ad-

vert to the most material, and most noted, which are—the BERKS, HANTS, HEREFORD, SHROPSHIRE, YORKSHIRE, and MIDLAND county, for large size as bacon hogs ; and the Oxford, Bucks, Essex, Suffolk, and Norfolk, as smaller breeds for pork feeding. All the above breeds are more or less imbued with foreign blood, the larger breed chiefly through the medium of the Berkshire cross, that county originally taking the lead in the foreign improvement. Berkshire and Hereford boars and sows have been used, within the last twelve or fourteen years, in the improvement of the Irish breed of hogs, a coarse, hairy, and leggy variety, at length successfully improved into a form so nearly resembling that of our English stock, as to be with difficulty distinguished. Of those, both dead and alive, Ireland has exported immense quantities to this country.

During many years past, indeed, pig-breeding had greatly declined among us, and we had been supplied in proportion, not only with bacon and pork, but with stores for feeding, from Ireland. Demand, however, has had its necessary effect on a species of animal so speedily reproduced, and pigs are found in great abundance, throughout England. The price nevertheless has gradually advanced,

and at this time, (February, 1824,) Chappel, the crack Porkman of Skinner-street, London, sells the prime joints of his best milk-fed pork, at nearly one shilling per lb.

The Irish bacon has been greatly improved, and is not so easily distinguishable, as formerly, from English ; nor is there such a difference in price. Scarcely any bacon is now made in or near London, the Distillers, who formerly fed such great numbers of hogs, having long since exchanged that species of stock for bullocks ; and subsequently given up all live stock, disposing of their wash and grains to the cow-keepers. The two starch-houses of the metropolis, keep about five hundred hogs each, of which they make somewhat more than two annual returns, fat. The markets for dairy pork, near London, have not of late years, exhibited those considerable numbers formerly exposed to sale there, the demand being supplied irregularly, and from various quarters. From such causes it will naturally be inferred, that pig-breeding has been neglected in this country ; and in truth, the stock of those districts which I have just now quoted, is not equal in size and form to that which they once possessed. The Herefordshire, forty years ago, where the crack-stores for the Lon-

don feeders, and the *Turners* were the chief men for collecting them; but now it seems both the *Turners*, (at least as pig dealers) and the large breed of Hereford and Shropshire swine, are nearly extinct. Is Herefordshire then, one day destined to lose her large and noble breed of oxen in the same way? The best Berkshires are now to be found within six or seven miles of Norwich, some gentlemen amateurs (Messrs S. and R. Hawes, of Coltishall,) having at great pains and expense, selected the best-formed individuals for breeding, to be found in Berks, that the breed might be preserved as nearly as possible to its old standard of excellence. The vicinity of Peterborough, Northamptonshire, is also said to produce some of the best large-sized swine of the present day. We thus exemplify the motto of the old Almanack makers, *omnium rerum vicissitudo*—all things change.

The West India Islands and the Azores ought not to be forgotten, as producing a fine and delicate breed of pigs, originally, it may be presumed, Spaniards, which have at various periods found their way thither; such have been used for the purpose of refining our native breeds. South America has also a fine breed of pigs. At Lord Somerville's show, in

1809, Mr. Gibbs, seedsman to the Board of Agriculture, exhibited a black wild pig from *Monte Video*. The sow and litter were imported together, and were very savage. They were deep in form, with very fine bone. One of them fattened very young to twenty-four stone, and although ripe and carrying a sufficient quantity of *flair*, it had more flesh in proportion, in the opinion of the butcher, than he had ever before witnessed. There was the least possible offal, the inside seeming to be filled with flesh. It was remarked that the great gut was smaller than the smallest gut of a small pig. This pork was excellent, inclining to the savoury.

It has never occurred, that I am aware, to our breeders, to preserve any of the fine foreign varieties pure, whence possibly a still more delicate pork might be raised, than any we at present possess, granting the attempt were made with those which furnish muscular flesh or lean, as well as fat.

CONVENIENCES FOR SWINE.

ROOM and VENTILATION are objects of the greatest import, where numbers are kept, and dry lodging, without which essentials, success must not be expected. Nor are swine, in what-

ever state, proof against excessive cold, for I have known instances of their being frozen to death in their sty, and have always remarked that severe weather materially checks their thriving, unless they be sufficiently defended from the chilling effects of the air.

The STY, situated upon a dry foundation, as well as sheltered above, should be paved at bottom, to the end that it may be kept clean and dry, the operation necessary for which should be daily performed, for although pigs will wallow in the mire, they are yet more thrifty in clean lodgings. As swine confined usually employ their leisure time in demolishing, with their teeth, the wood-work within their reach, the modern cast-iron TROUGHS are profitable; at any rate, wooden troughs ought to be iron bound. A RANGE of sties is convenient where numbers are fed, on account of the greater facility of attendance, and of distribution of the wash reserved in the cistern.

According to an ancient and general opinion, not, however, entirely supported by either ancient or modern experience, swine do not long succeed, if kept upon the same ground in considerable numbers, infecting each other with a

malignant atmosphere. In opposition to such an idea, history informs us, that the Roman feeders possessed herds of swine, to the amount of two or three thousand each; and I have often seen upwards of two thousand large hogs fattened under the same roof, where, in a long course of years, no mortality has been experienced or apprehended. The opinion in question has, most probably, arisen from the circumstance of too great a number of pigs bred within confined limits, and a defective ventilation, assisted, perhaps, by a wet or boggy soil, and a want of cleanliness.

PURPOSES IN FEEDING.

These are either for mere domestic use, or for profit by sale; and the choice of plan lies between BREEDING, and purchase of STORES; the former attended with most trouble, but proportionate emolument. Swine are not generally kept to advantage, unless where some waste remains to be gathered, or cheap articles of food can be grown for them; but the rule admits of exceptions in favour of those who are well skilled in the animals themselves, and in the turns of the market. The wash and offals of a moderate kitchen will go a considerable way towards the support of a breeding

sow, and in return, the produce of the sow will operate in a comfortable proportion, towards the support of the kitchen. To embrace in our view the profits of the farm and of the public, it has been said, and according to my experience, upon sufficient grounds, that, *an hundred pounds laid out in swine, will return a greater profit, than the same sum invested in any other kind of live stock*; and that no other article of flesh provision can be raised and prepared for market so soon as pork; in consequence, it must be materially instrumental in the production of plenty, and in restraining exorbitance of price in the first necessities. The seasons most usually advantageous for the purchase of pig stock, are, at old Michaelmas, after clearing the harvest fields, and in the months of March and April.

CHOICE OF VARIETIES.

The reader is referred to our brief, but sufficient list of these, from which, according to his convenience or opportunity, he may make his election; or without farther trouble, he may very safely have recourse to the HOME-BREDS of his own district or vicinity, since we are so far generally improved that in whatever part of England a man may reside, he need

not fail to purchase pigs for his money, which a sufficiency of good meat will fatten to profit.

For BACON-HOGS in a commercial view, the regular large varieties are doubtless best calculated, as endowed with the important qualification of *growth*, to make use of the technical term, as well as of breeding fat.

This property of growth, or accretion in stature, in animals to be fattened, has been of late years slighted, since the fashion has prevailed of confining our attention solely to the consideration of fattening; but on actual experiment, I believe it will be found, that a well-shaped animal of whatever species, endowed with both properties, will make the heaviest return, and in an article of superior quality, for the quantity of meat consumed.

The best PORK, in course, must be expected from the smallest, most delicate, and fine-fleshed varieties; for example, those which have resulted from crosses with the southern stock, or with the wild boar of the Continent. All our reputed porking breeds have this mixture in various degrees. But I must here put in my plea of objection more strongly, and in the name of good old English ROAST PORK, against the modern principle of sacrificing every thing to fat, and consequently against

those breeds, too frequently and deeply crossed with the foreign forms which produce no lean. In bacon or salted pork, all fat may be tolerable and even may be preferred by some palates; but in roasted pork, it is not possible but that a certain portion of lean flesh must be desirable, scarcely a taste of which is to be found in the hinder loins, at any rate, of the species under consideration. The little flesh, too, yielded by such pork, is of an inferior greasy quality, and insipid flavour, perhaps necessarily, from being so thoroughly saturated with the fatty material: and should pigs of this description be slaughtered before they have become ripe or fat, their pork will be ordinary, and their weight very short of the profitable standard. On such considerations, the western pigs, chiefly those of Berks, Oxford, Beds, and Bucks, possess a decided superiority over the eastern, of Essex, Suffolk, and Norfolk; not to forget another qualification in the former, at which some readers may smile, namely, a thickness of the skin, whence the *cracklin* of the roasted pork, is a fine gelatinous substance which may easily be masticated, whilst the cracklin of the thin-skinned breeds, is roasted into good block tin, the reduction of which would almost require teeth of iron. The west-

ern porking breeds make handsome sides of delicate bacon and hams, for superior family use. The eastern pork is however smaller, and perhaps apparently more delicate, than that here described as in reality far superior. The eastern are also the quickest feeders.

BREEDING.

The DURATION of LIFE in the swine, is said by naturalists to extend to twenty or thirty years, who report that the BOAR continues to grow to the end of the term. Swine are ready for procreation at the age of seven months, but the male is unprofitable for that purpose until twelve months old, and is in his prime at two years. In other respects the age of swine is matter of small concern, since they are never kept until they are old; and it is the custom with many breeders to slaughter even their most prolific sows, in the second year. The young sows to be preserved for breeding, should be chosen with deep and capacious bellies, the full number of teats, and of the most extensive or widest general form. The term of GESTATION in swine is four months, or one hundred and fifteen days, with a very few days variation, producing

three litters of from five to twelve pigs each, in about eighteen months, supposing the pigs to be weaned; but in two or three months less time, the pigs being suckled for roasters. Greater numbers to a litter, are often produced, more particularly by the China breeds and its crosses, the most prolific of swine: and we had a late instance in Essex, of a sow of that breed, the property of Mr. Tilney, of Writtle, which farrowed 301 pigs in 13 litters, out of which she actually brought up 177, or more than 13 to a litter.

After receiving the BOAR, for which the middle of SEPTEMBER and the middle of MARCH are the most advantageous seasons, the sow should be confined until her irritability has ceased, which will return within a few days of her parturition, a sign which demands attention. After she has become heavy, she should be securely lodged by herself, lest others injure her by lying upon her; and at any rate, during the time of bringing forth, as other swine would devour her offspring as they fell. According to the above breeding periods, the pigs will come in the middle of January and of July; in the first month, with the spring before them, and their nursing mother, in the interim, to defend them from the winter's

cold; in the other, they are nurtured in a warm season, weaned in the harvest-field, and then enabled to endure the rigours of the approaching winter. It has proved totally unsuccessful to rear pigs in the winter season, although they may be bred for roasters.

SIGNS of approaching PARTURITION, in addition to the one above noted—swelling of the bags of milk, *decreased* size of the belly, sleepiness. A vigilant swineherd, solicitous to preserve all the pigs, will watch and attend the farrowing sow, day and night, because some sows are so unwieldy, or so careless, as, at perhaps every farrowing, to lie upon, and crush to death, a part of their young; others, from an irregular and vicious disposition, will devour a part, or even all of them. As one precaution, the breeding-sow ought not to be kept fat and heavy, yet in good heart and full strength. Few keepers will, or ever do, go the length of attending the sow, satisfying themselves with the profession that, she will be safest left to her own care. To those who are willing to undertake such an office, a hamper or basket of straw, will be found convenient, in which to withdraw the pigs from danger when it may be needful, in order to replace them properly as occasion may suit;

which practice it may be necessary to repeat during two or three days, until the pigs shall have acquired strength and caution sufficient to secure themselves. It may indeed be profitable to lose part of a too numerous litter, but accident will not respect the quality of the pigs, and the most puny and worthless may escape. None must be saved beyond the number of teats, and upon an average NINE is a sufficient number. Would the sow submit quietly, STRAPPING her jaws during the first day and night, with the trouble of releasing her at her meals, would be an effectual security, in case of unnatural voraciousness.

The PIGGING-HOUSE should be warm and dry, and secure from the inroads of foxes and other vermin, which have been known to steal sucking pigs from the sleeping or absent sow. Short straw is preferable for a bed, but in not too great quantity, lest the pigs be smothered beneath it; this should be renewed with due regard to cleanliness, and as the unwieldy sow is apt to crush her young against the wall, it is proposed, in the *New Farmer's Calendar*, to append an inclining or projecting rail, around, beneath which the pigs may escape, on the downlying of the sow. Sows which are given to devour their pigs, or have teats too large and coarse, or yield too thick

216 *First Food—Cutting and Spaying.*

and unwholesome milk, should be discarded as breeders, but a small number of pigs at the first litter is no valid objection.

The FIRST FOOD should consist of warm and nourishing wash, whether from the kitchen or dairy, thickened with fine pollard or barley-meal. A portion of strong beer may be added as a cordial, should circumstances render it necessary. The common wash, pollard or meal mixed with water, if scalded, the better. The same diet is proper for the pigs to partake of whilst sucking. The sow can scarcely be too well kept during this period, and in addition to two meals as above, should be allowed a middle one of dry meat; for example, a pint of peas or beans, with half a peck of carrots, boiled potatoes, or the like. Potatoes alone are a poor and watery dependence, nor should pigs be fed with them or any loose vegetable trash, until three months old. The sow may be let out to air herself at pleasure, and after a while with the pigs to accompany her, but never in bad weather.

CUTTING and SPAYING the young pigs, is performed at six or seven weeks old, according to their strength: in a week after which, they may be WEANED. After weaning shut up the sow closely, feed her well, and on the reflux of the milk, she will express very loudly

her desire for the company of the BOAR. It is necessary to repeat that sows are voracious, and occasionally fierce and savage animals, and have actually devoured young children. The sow is SPAYED whilst she gives suck, and the boar safely CASTRATED at any age.

! RINGING the snouts of pigs should be performed at weaning time, and after they shall have recovered from castration. In Cheshire, they cut away the cartilage or gristle of the snout, in place of inserting a ring, a practice which I have not hitherto essayed.

ENCOURAGEMENT TO PIG BREEDERS.

“Lancashire, April, 1813. Pigs of six weeks old, which sold two months ago at four shillings each, are now worth twenty shillings each.”

STORE-FEEDING AND MANAGEMENT.

WEANLINGS should have, at least. one month of delicate feeding, warm lodging, and care. The same kind of food should be continued to them three times a day, to which they were at first accustomed with the sow. Corn and pollard are dispensable in pig feeding: they may, indeed, be reared more cheap-

ly, but not then so profitably ; and the breeder who sagaciously plumes himself on the *hardiness* of his stock, of whatever species, will not always have to boast of form, size, and good plight, into the bargain. On the other hand, it is readily acknowledged, that the round and barrel form of a pig, making all fat, is most cheaply maintained, and the soonest ripe.

GROWING STORES and sows are fed through the winter with the run of the barn yard, upon roots of all kinds, including rutabaga and mangold-wurtzel, cabbage, &c. a ration of corn of some kind being allowed, with wash. Meal of any kind—bean, pea, oat, barley, rye, buckwheat, or tare, and linseed, boiled with potatoes, make good wash. Pea-wash alone scours young pigs. Pulse, or corn of any kind, are advantageously given in the straw, to pigs which are good thrashers. In autumn, and a plentiful season, swine will subsist themselves abroad upon acorns : in summer, upon clover, lucern, or tares ; but very young pigs particularly, ought not to be left abroad in continual rains, and will always pay for a daily moderate feed of old beans with the clover. Swine turned to shift upon forests or commons, are apt to stray and hide themselves for a considerable time ; the ancient and ready method to collect

them, is by the sound of a horn, with which they have been accustomed to be fed. Where a considerable herd are kept, and they are shifted upon the waste, they should be attended by a boy to prevent trespasses.

FATTENING FOR PORK AND BACON.

Pigs will FATTEN either in confinement or at large in the yard. When in sties care should be taken that the pigs be all *ringed*, or they will not lie quiet ; also that, when a number are fed together, any one at which the rest may have taken a distaste, be immediately withdrawn, or in probability they will tear him to pieces. For the same reason, a stranger should never be introduced. The fewer together, the more quietly and speedily they fatten, and by consequence, they succeed best singly. The troughs with SLIDING BOARDS before the meat, giving way to the snout of the pig, and shutting on his withdrawing his head, generally used in Hants and Berks, greatly prevent waste. They used I recollect, to be provincially denominated *witches*.

WEANLINGS are fattened for delicate pork chiefly in the dairies, where they are made ripe in a few weeks. Generally a pig of five or six months old will be fattened in seven, or

eight, or twelve, weeks, dependent on his condition. Small bacon hogs will be fattened in twelve weeks, the larger in sixteen to twenty. They should be kept perfectly clean, dry, and comfortable, for which daily attendance is necessary ; and it is preferable, where time can be spared, to feed thrice in the day. The most correct feeders, and those largely concerned, endeavour so to apportion the meal, that the trough may be entirely cleared, and yet the appetite of the animal thoroughly satisfied ; a plan which has been proved in a thousand examples to fatten the most speedily, and make the fattest hogs : so totally opposite, nevertheless, to the ancient and still common country method of filling the troughs at every feeding hour, whether empty or not. I have witnessed an old farmer repeatedly urging his servant to the performance of this duty, whilst the hog-trough remained constantly replenished with a mingled mess of meal and dung, of equal use to the hogs to lie and wallow in, as to feed upon. To speak guardedly, I have no doubt that, in former days at least, one bushel of corn in three, has been in this mode converted to dung, without ever having entered the bodies of the animals.

Various articles for FATTENING swine.—Skimmed milk, and pea, oat, or barley meal, rank first in point of excellence with respect to the quality of flesh, milk-fed pork being superior to any other description, not only in delicacy of flavour, but in substance and weight, none weighing so heavy in proportion as the milk-fed animal. Hence the bacon of the dairy counties is superior. Milk will fatten pigs entirely, without the aid of any other food, a practice sometimes in the dairies. CORN-FED pork is next in value, PEAS, OATS, and BARLEY being the best adapted grain. BEAN-FED pork is hard, ill flavoured, and indigestible; potatoe fed, it is loose, insipid, weighs light, and wastes much in cookery. To mix potatoes in the food of fattening pigs, is deceptive, deteriorating the pork in exact proportion. Hence the Irish pork and bacon are generally inferior to the English, and the market price so in proportion. This inferiority has lately been stated to me, by the estimation of Mr. Charles Cotterill, an eminent dealer in Irish provisions, at three ounces per lb. upwards. CLOVER-FED pork is yellow, unsubstantial, and ill tasted: fattened on ACORNS, it is hard, light, and unwholesome; on OIL-CAKE SEEDS, or CHANDLERS' GRAVES, it be-

comes loose, greasy, and little better than carrion ; on BUTCHERS' OFFAL, luscious, rank, and full of gravy, but of a strong and disgusting scent. Compared with the general consumption of pork, the real DAIRY-FED meat bears a very small proportion, and the sale of it in the metropolis is in very few hands, always commanding a superior price. In some parts of France, they SKIN their pigs intended for fresh meat.

A pig will eat two or three PECKS of corn or meal per week, in fattening ; a hog upwards of a bushel, in proportion to his size. The following is an example of successful feeding. " In the spring 1805, Mr. Ivory, of Whitchurch, Salop, killed a hog of two years old, one side of which weighed 410lbs. the other 414lbs. total 46 scores $14\frac{1}{2}$ lbs. or about 111 stone, country fashion. He was purchased very lean at two years old, price four guineas, was fattened in between seven and eight months, and then valued at eighteen guineas ; subsequently, twenty-five guineas for him were offered and refused." This hog probably made upwards of thirty pounds at the then price, and might have consumed full forty bushels of corn.

THE DISEASES OF SWINE.

Little success has hitherto attended the *doctoring* of swine, which are the most stubborn and intractable of patients. Thence, PREVENTION is the only remedy deserving of any considerable share of the keeper's attention. This should chiefly extend to the avoidance of infection by foul air, of damp and cold, and of the extremes of either starving or gorging the animals. Sulphur and madder are the best alterants, in foulness of the skin or habit. In the SWINE POX, the same medicines in small quantities, with treacle in the wash, fresh brewers' grains, or sweet pollard, the sties being well ventilated, or the animals aired abroad. Inflammation of the lungs, or HEAVINGS, seem to admit of no remedy, and is sometimes found to be constitutional or hereditary in swine. When the EARS of swine crack, and become scabby in the field during the summer heats, they should be frequently anointed with tar and lard.

SECTION XVI.



THE MILCH COW.

THE *genus* BOS, commonly called *neat*, and sometimes *black cattle*, stands at the head of our domestic animals destined for the use and food of man; and more especially for that most precious alimentary production, MILK, of such importance in rearing our children, and adapted to such a variety of other family purposes. For a constant supply of this invaluable resource, we depend on the female of this race, the harmless and docile cow, which is

compelled to produce and part with that secretion, intended by nature for the support of her own progeny.

For a more extensive view of this subject, as well as that of SWINE, the reader is referred to "*Lawrence's General Treatise on Cattle*"—the present object is to impart such a degree of practical knowledge, as shall be sufficient for the private family dairy, to minister to the convenience of proprietors, and to shield them from disappointment and imposition.

Our neat Cattle are divided into various breeds or races, each distinguished by peculiar qualities, the most important of which are the natural propensity to breeding milk, or making beef; with the former of which lies our most material business. The English *milky* breeds chiefly are—the *Lancashire and Midland County* LONG-HORNS—the *Yorkshire*, or *Holderness* SHORT-HORNS—the *Suffolk* DUNS—the *Natt*, or hornless *Red Devons*. In *Scotland*, the *AYRESHIRE* and the famous *DUNLOP* COWS.—the *Fifeshire* and *Orkney*—*Homebreds*, or mongrels, to be found in all parts, many of which prove useful dairy cows,—the *Alderney*. The long-horned breeds generally excel in the quality, the short-horned in the quantity of milk, individuals of the *Holderness* cows hav-

been known to produce the enormous quantity of nine, and even ten gallons in a day. Such great milkers must necessarily afford but a thin fluid, not so well adapted to the butter-dairy, as to the sale of the milk, excepting with respect to that material branch of the dairy business, pig-feeding. The signs of productiveness of milk in the cow are generally—"a thin head and neck, clean chaps, free from leather, deep and rather flat carcass, wide hips, the bones perhaps inclined to be pointed, capacious udder, and large plain milk-vein; the last two signs worth all the rest."—*New Farmer's Calendar*.

The next considerations for a private buyer, are, SELECTION, and the means within his power to make it. These will depend materially on his situation, and whether his aim be to obtain something capital in his way, or to be content with the choice offered him by the markets or fairs of his vicinity. In the former case, his only method is recourse to some salesman or jobber, in whom he can depend, to supply him with a milch beast of the highest reputed established breed, for which he must expect to allow a proportionate price. Should he prefer to take pot-luck nearer home, let him beware of relying on his own judgment

solely, unless that be very mature, for cow-jobbers, and horse-jockeys, have ever been cater-cousins; and I, who have considerable experience of them both, have never seen the least symptoms of their probable degeneration. He ought to be reminded, also, of another fact, least his expectations should be too sanguine; it is, that great and deep milking are sufficiently rare, even in our most milky breeds, and that among cows, great milkers are about as scarce as good horses. Indeed, this produce is so extremely valuable, that a constant great milker is worth almost any price, will amply repay the highest expense of keep, and should be kept to the latest period of her age, should her milking continue. On the other hand, no cow should be kept beyond the period of good milking, but should be immediately replaced by a young and fresh milker.

It will immediately occur, that a single cow cannot possibly yield a sufficient annual supply of milk and butter for a family, however small, both on account of the necessary falling off of her produce, as she advances in her pregnancy, and of the period in which it will be proper for her to go dry. *Two* cows will therefore be necessary for even a moderate family, and any surplus produce of this kind,

always find a ready disposal. The second cow may be purchased at convenience, with respect to time and need of her in the dairy.

SIZE is a matter of importance which must be regulated by the quantity and nature of the keep, which a proprietor may have at command. If he have a sufficient range of good grass-land, in course, he can afford to keep the largest breed of cows; but if he possess but little, and ordinary grass, or intend to shift his cows upon a common, he must make choice of small stock, which will shift with a moderate bite, and are not too heavy to labour through the day in order to fill themselves. However, on such provision only, excepting perhaps at the height of the season, the smallest heath-croppers, even if good milkers in proportion to their size, will make but a poor figure in the dairy, without a good allowance of extra provision.

Inexperienced persons often suffer loss and disappointment, by purchasing a stale milker, perhaps an old and worn out cow, from some neighbouring dairy, by the disposal of which the seller is much accommodated. It is generally most advantageous to have a fresh five-year-old beast in full milk, that is to say, with her calf a few days old by her side, or she

nearly ready to calve. The calf may be either immediately sold as a suckler, suckled at home for the butcher, or reared, according to circumstances; but the first method is doubtless the most profitable, milk, butter, and pork, being articles of the greater worth and convenience. If a small, common-bred low-priced cow be the object, no other consideration is necessary than her health, age, and milky indications, particularly that she have large *tackle*, in plain English, a capacious udder, and that she be a *quiet* milker. This last is a matter of some consequence, since it is not quite sufficient that a cow produce a large quantity of milk, unless she will also render it quietly, and suffer you to take it away. The sooner a cow is milked dry after purchase, the better, since they are invariably *stocked* for sale; that is, their milk is suffered to remain perhaps two days, in order to distend the udder to the utmost by way of recommendation; a cruel and absurd trick, by which these animals are tortured, and many of them annually ruined, from inflammation of the milk vein, and *coring* of the distended parts.

As to a CHOICE of BREEDS for a private family, none in England, probably, combine so

230 *Choice of Breeds—Colour no object.*

many advantages as the *Suffolk* dun-cows. They excel both in quantity and quality of milk; they feed well after they become barren; they are small sized, and *polled* or hornless; the last a great convenience. The horns of cows which butt and gore others, should be immediately *broad tipped*. There is a breed of *polled Yorkshire* or *Holderness* cows, some of them of middling size, great milkers, and well adapted to the use of families, where a great quantity of milk is required, and where price is no object, and food in plenty. If richer milk and a comparison of the two famous breeds be desired, one of each may be selected, namely, the last mentioned, and the other of the *Midland county*, or long-horned species. Colour is so far no object, that neither *a good cow nor a good horse can be of a bad colour*; nevertheless, in an ornamental view, the *sheeted* and *pied* stock of the *Yorkshire short-horns*, make a picturesque figure in the grounds. The *Alderney* cows yield rich milk upon less food than larger stock, but are seldom large milkers, and I believe, are particularly scanty of produce in the winter season. They are, besides, worth little or nothing as barreners, not only on account of their small size,

but their inaptitude to take on fat, and the ordinary quality of their beef.

I regretted much to be informed last year, in Norfolk, that, from the difficulties of the times the old and valuable breed of Suffolk dun cows had been suffered to degenerate, and that there was a danger that it might be even lost. These cows, together with the Alderney and Guernsey, or heifers and yearlings of those breeds, are procured and sent to customers by Mr. Fowler, Little Bushey Farm, near Stanmore, Middlesex.

It is pre-supposed that a dry and comfortable cow-HOUSE has been provided, containing a stall or two, and a *calf-pen*, and it is recommended, in the *General Treatise on Cattle*, to confine the hinder legs of a cow, whilst milking, as well as the head, the former of which is most securely effected by two stumps of wood fixed in the ground, to which the hinder legs may be strapped. They who aim at perfect security, as nearly as that may be obtained, will perhaps be induced to make it a rule, never to milk a cow with her head and legs at liberty ; but most, as has always been the practice, will incline to put confidence in the quiet cow ; many such, however, have I seen accidentally kick down a swimming pail

of milk, and that may very probably happen when the article, being scarce, is of the most consequence—the unfortunate attendant, male or female, then marches into the house, with a grave step, a long face, an apology, and an empty pail.

The provision of food for the cow, must be looked upon as the prime concern in the dairy business, for such a constant daily draught upon the animal juices cannot be answered, but by aid of the most ample supply, even to satiety, of nutritious and succulent victuals; not that, according to the absurd notions of many persons, keep regulates and equalizes milking, be the breed whatever it may, since in some breeds, the keep turns to milk, in others to beef; but because the truest and largest milker will very soon lose that precious faculty, without proportionate, that is to say, high feeding. Keep short and meanly, and your milk and butter produce will be in exact proportion, and the cow, when dry, emaciated and of little worth. A farmer, some years since, kept eighteen cows upon a common, and was often obliged to buy butter for his family. The common was inclosed, and the same person supplied his family amply with milk and butter, from the produce of four cows

well kept. Great milkers, indeed, seldom carry any flesh upon their bones, and are perhaps as seldom made fat, but they pay as they go, and never retire in our debt. The difficulties in cow-keeping are these—the expense of their food is considerable, more especially with respect to any which must be purchased, and if the produce be inconsiderable, it may be a losing concern. You may be feeding a sparing milker into flesh, and if you stint her, or allow only ordinary food, you get neither flesh nor milk. *Amateurs* in this line should procure the largest milkers, and I had almost said give them gold, could they eat it. In this case, it may be depended on, *milk is always of more value than the best cow-food*, which is the *jit*; and a cow, the natural tendency of which, is to breed milk, will convert all nourishment, however dry and substantial, into that fluid; in fact, requires such solid kind of nourishment, to support her strength, and stimulate her to procreation, which otherwise, such are very apt to be deficient in, and frequently to miss their *bulling* at the proper season. But should corn be allowed, oats are the most proper; they should be ground or bruised, and moistened with water, as the cow would otherwise swallow the oats whole, which

would not only fail in giving nourishment, but might be productive of obstruction and disease. Fine pollard also, moistened or mashed, is a nourishing food : the milch cow, however, should always have exercise, and it is more especially necessary, when extraordinary and substantial food is allowed.

Another great object for our *crack* cow-master and lady of the snug rural mansion, is to have milk, cream, and butter, in a generous abundance and high quality, throughout the winter, as well as the summer season; and of these, if they will take care enough to walk in our old and well-trodden paths, they shall not fail. The method is by contriving to have a fresh milker in the winter, with an ample store of the best provision for the season. I will here just touch upon a point which ought to be of great interest to humanity. Should a family of the description here indicated, have milk, either new or skimmed, to spare, the poor labourers in the vicinity will be glad and ready purchasers. It is a trouble my family most willingly incurred. To the great disgrace of this land, flowing with milk and honey, and eaten up with religious zeal, the wretched poor, to whose toil and exhaustion we owe all our luxuries and com-

forts, have *never* been able to obtain milk for the sustenance of their offspring and their own most innocent enjoyment, even in the *dairy counties*.

SUMMER FEEDING; and let it always be recollected, that *economy* is the leading feature of our plan. Natural grass is the first and best of all food for our domestic animals. Of the artificial grasses, *lucerne* stands first, and green tares are a very succulent and nutritious food for Milch Cows. The saving method of managing grass, and it will be found excellent economy where the proprietor may have only a small close or two, is to keep it constantly shut, and free from the tread of the cows, and to cut the grass as soon as of sufficient length and substance, and carry it to them; no more being cut at once than can be consumed in a day, the cutting being made in the morning. This to continue throughout the season, and as late in autumn as any growth can be obtained. According to Mr. Curwen's experience, some years since, three acres of grass cut and carried, supplied thirty milch cows with two stone each, or twenty-eight pounds, during two hundred days. He observes that, to have supplied them with two stone of hay each, during the same period, would have re-

236 *Management of Grass—Economy.*

quired seventy-five acres of land for its production. And to have grazed such a number of cows at liberty, that length of time, it is obvious, must have taken a very considerable number of acres. To enable the meadow to support this exhaustion from the scythe, it should be cleared at the end of every autumn, from all kinds of weeds and rubbish, and fresh grass-seeds of the best kinds, cast upon the bare places. A coat of good manure should be then allowed, consisting of all that can be collected from the household, or procured elsewhere, mixed up and augmented with virgin earth. The garden will assist with its superfluity in feeding the cow, and lettuces, as a change of diet, will help to force the secretion of milk. Should the green food scour the cow, a small quantity of good hay must be allowed daily.

The few advocates for the economical mode of feeding cows, always direct them to be kept entirely in the house, both summer and winter, a practice to which I have strong objections, not only on the score of the animal's health and comfort, but that I have always experienced exercise abroad to increase the quantity of milk. Thus the cows may be turned upon the common or waste, to remain or come

home at their liberty, being fed to the full, with cut grass, morning and evening, with the constant caution, of allowing them shelter in the fly season. They may lie abroad during summer nights, in a well-littered yard, or secure waste, a sufficiency of cut grass being at their command. Pure water is of great consequence to the health and productiveness of the cow. If one beast *drive* the other, always at feeding times tie up the mistress.

WINTER-FEEDING. The chief dependence for cows is *rowen*, or after-math hay. This must be either grown at home, or purchased. It is a piece of extravagance to allow a good milch cow dry straw, *because milk is worth more than hay*; but should the necessity exist of using straw, none other is fit than *oat* straw. Rowen is generally supposed to force milk, but in poor pastures perhaps the first crop may be preferable; and I have lately been informed by a London cow keeper, a good feeder, that he has discontinued giving rowen to his cows, finding the best hay most profitable. Carrots are an excellent winter food, indeed the best of the root kind; man-gold-wurtzel, also, affords a plentiful supply; which last, however, must be dispensed with caution, cows having been *hoven* by it. If

238 *Food—Milk-fed Pork—Exposure.*

potatoes be given to cows, they should be steamed or baked ; those who chuse to give them raw and mashed, should allow hay with them, as they have been said to bring the scouring rot on cows. Bruised furze-tops are very good, and help to make capital winter butter. Cabbages may be given moderately, but turnips make thin milk and bad butter, in spite of all the nostrums which have been recommended as preventives. The miserable practice of giving oil-cake to cows, insures greasy, unsubstantial, ill-scented butter, and has a similar effect on veal. When substantial food appears necessary, a daily moderate feed of oats, broken, or fine pollard, moistened with water, is most proper.

With the two cows in full milk, may be kept well, a breeding sow, or two or three young pigs ; or, should the proprietor desire a specimen of the finest milk-fed pork, he may feed a pig upon skimmed milk, with the addition of a very small quantity of barley or pea-meal, making it thoroughly fat in two months.

Milch beasts should never be exposed by NIGHT to the inclemency of the winter season, which chills them, and dries up part of their milk, keeping them backward in all beneficial respects. At any rate, they should have a

well-littered shed, in which they may repose in comfort, and with their *loins* dry—a matter of great consequence to their health.

The ANNUAL CONSUMPTION of food per cow, if turned to grass, is from one acre to an acre and a half in the summer, and from a ton to a ton and a half of hay in the winter. A cow may be allowed two pecks of carrots per day. The grass being cut and carried, will economize it full one third.

The ANNUAL PRODUCT of a good fair dairy cow, during several months after calving, and either summer or winter, if duly fed and kept in the latter season, will be an average of seven pounds of butter per week, from five to three gallons of milk per day. Afterwards, a weekly average of three or four pounds of butter from barely half the quantity of milk. It depends on the constitution of the cow, how nearly she may be milked to the time of her calving, some giving good milk until within a week or two of that period, others requiring to be dried eight or nine weeks previously. I have heard of twenty pounds of butter, and even twenty-two pounds, made from the milk of one long-horned cow in seven days; but I have never been fortunate enough to obtain one that would produce more

than twelve pounds per week, although I have had a Yorkshire cow which milked seven gallons per day, yet never made five pounds of butter in one week. On the average, three gallons of good milk will make one pound of butter.

The DAIRY must be the seat of the most exquisite and punctilious cleanliness, in every part of its management. *Hence, all sluts, snuff-takers, and daudles—away to the dust-hole and cinder-heap!*—a proper inscription to be placed in an advantageous light. The room must be airy, and both glazed and latticed, and floored with flag-stones or broad brick. Lead is dangerous, and well-glazed earthen pans are the best and most convenient receptacles for milk : these must be scalded perfectly clean, outside and in, beside being frequently boiled in a copper conveniently posited, well scrubbed with a brush, and rinsed in plenty of clean water. Milk should be set immediately : if the weather be cold, put warm water at the bottom of the milk-pan ; if warm cool the dishes previously with cold water. Skim off the cream in summer, every twelve, in winter, every twenty-four hours. Shift the cream into clean pans daily, in winter ; twice a day, in summer ; generally stir-

ring it several times a day, with a clean wooden spatula. To make fine butter, cream should be churned within three days, in hot weather. In severe frosts, it is best to churn the *whole of the milk* daily, according to the practice in Scotland, a frozen cream always making rank butter. German stoves, burning charcoal, are useful in a dairy. The milker should never be suffered to enter the dairy in a dirty apron, covered with hairs from the cow-house; on this head, three reprimands, *the last accompanied with a discharge.*

An upright HAND-CHURN, OR BARREL-CHURN, will either of them answer the purpose. The quantity of milk being large, the latter will be most convenient. Baker and Son, of Oxford-street and Fore-street, London, have invented a box-churn, with a spindle, which turns in the manner of a hand-organ, and which, as calculated for a small dairy of two or three cows, seems likely to supersede the old upright hand-churn. It may be placed on a dresser or table. Price, for one to make fourteen pounds of butter, 2l. 16s. It may be had of any size.

Much has been said and written on the difficulty of making butter *come*; it is, however, no less true, that butter which comes too

quickly is not likely to be too good, nor ought any to come indeed, under nearly an hour's labour. The difficulty exists only in cold weather, when the churn may be placed near to the fire. In summer, cool the churn with cold water; in winter make it warm. Strain the cream through a fine sieve or linen cloth. It should be remembered, however, that the use of warm water, or taking the churn near the fire, always prejudices the butter, and in course should not be practised but in case of absolute necessity. First of all, when the butter is backward, *at the time it ought to come, not before*, put in half a gill of good vinegar mixed in a small quantity of warm milk. In summer heats, the cooler you churn the better, even to setting your churn in cold water.

The process being complete, and the butter MADE, strain off the butter-milk and put the butter into cold water, dividing it afterwards into small lumps, upon a sloping board. Beat it well with wooden pats, *not sweaty hands*, until entirely free from the milk, and quite firm, cold water being at hand to throw over the board occasionally, and to wash the pats. Salt with fine-beaten salt as much as sufficient. The butter being made up according to the

custom of the place, let the lumps be spread separately on a cloth that they may not adhere. A highly-esteemed Norfolk friend writes me, “butter is better without washing.” The affair is then left to the discretion of the practical reader.

“To put butter down for keeping let the salt be perfectly fine; a layer of salt at the bottom of the firkin or jar; beat the butter down with a hard wooden rammer, not *hot fists*, and cover the top with salt. *The best colouring for butter is good keep for the cows.*” *New Farmer’s Calendar*; which see for the subject more at large, for the root and winter crops, &c. The process of CHEESE-MAKING is generally well understood in the regular cheese-making districts, which supply the rest of the country with such an admirable commodity, but it is not worth repetition elsewhere, being, as the case stands, merely an inducement to people to waste good milk. The *bang* of Suffolk and Norfolk is misapplied, it ought to be cut into latches for gates, a use to which I have formerly seen it applied in those counties.

MANAGEMENT of the cow. The AGE of neat cattle is determinable by the *teeth and horns*, for the particulars of which, see the *General*

Treatise on Cattle. Period of gestation in the cow, according to an average, *two hundred and eighty-seven days*, or forty-one weeks, with a bull-calf; a cow-calf comes a week sooner. The cow's desire for the bull, every three weeks of the season, should be particularly attended to, so that her milk may be renewed. These animals are extremely liable to abortion, and should be kept from alarm, as much as possible, and out of the way of carrion and ill scents. They are ladies as subject to *hysterical* passion as their betters. They should particularly not be driven and harassed about by rude and heedless boys or girls. The cow's time having been regularly noted down, it is better to watch and let her bring forth under shelter, in a roomy place, but absolutely necessary in the winter. She should never be tied up, when near calving, as it might occasion her to lose the calf, by being smothered, or otherwise. Give the cow warm water, and a warm mash or two, with some sweet hay. The **CLEANING** or after-burden should almost immediately follow the calf, and should be forthwith removed. It may be retained from cold caught, in which case the cow must be kept warm, and fed as above, since she will be entirely ruined should it not come

away. The calf should be permitted to suck the first milk or *beastings*, until the flow be abated and no danger remain of inflammation. If the calf be weak, it should be held up to the teat. Some young cows have the udder greatly distended and inflamed, two or three days previously to calving, and may be relieved by part of the milk being daily drawn away.

The HOURS of milking should be regular, and it is of the utmost consequence that the cow's udder be perfectly drained of milk, to the very last dripping, the habit of leaving milk in the udder being in the end greatly injurious. The last milk, moreover, is always the richest, according to the remark of an experienced Cheshire dairyman, "each succeeding drop which a cow gives at a meal, excelling the preceding one in richness." A cow in full milk cannot be well drained under twenty minutes, by the best hand. The udder should be kept well trimmed, and with it the teats should be perfectly clean before milking. The tail, also, should be free from dirt, and every risk avoided of fouling the milk. Upon the continent cows are curried, dressed, and clothed like horses: without going to that extreme, they may be rubbed with wisps and

kept clean, that their appearance may be creditable to the family mansion.

The following anecdote, which dates two or three years since, may serve to exemplify the nature of these animals, and to shew the necessity of both their kind and careful treatment. Mrs. Bell, a widow in Anan, N. B., went to milk her cow, when another cow, which was grazing in the same meadow, ran at her, threw her down, and was in the act of goring her, when her own cow came running up, attacked the other with great fury, and succeeded, not only in relieving, but in all probability, saving the life of her mistress.

The calf may be sold as soon as it has drawn off the beastings, or first milk, unless any *coring* or defect in the cow's udder or teats may render it desirable for the calf to suck a few days, in order that the action may clear off any obstructions, of which the *butting* of the calf's head is generally the best remedy. If intended to be FATTENED for the butcher, it must be kept in a pen, particularly dry and clean, suckled twice a day at regular hours, always have the first, which is the thinnest of the milk, and not be permitted to overcharge the stomach. Lumps of soft chalk are usually placed for the calf to lick, as an

absorbent to neutralize those acidities engendered in the stomach from feeding on milk. It seldom pays to fatten a calf beyond ten or twelve weeks.

WEANING AND REARING CALVES. A calf may be weaned by being gradually accustomed to suck milk in a pail through the fingers. Many are reared upon very little milk mixed with hay-tea, linseed, or other slops; fed on straw in the winter, and in summer upon the common. Such cannot be expected to turn to much account. The best cattle are reared from the teat, well wintered in good shelter, and full fed, until they attain their proper growth. Warmth and dry lodging are of the utmost consequence to the improvement of all young animals. Calves may, however, be reared to good proof, by being suffered to suck a very moderate quantity daily, the bulk of their food consisting of skimmed-milk, thickened with oat or wheat meal; their winter food being carrots or Swedish turnips, sliced, and oat-straw, with a small quantity of hay daily.

To such of my readers as desire to make the most of a single cow, I cannot do better than recommend the perusal of a small pamphlet, published a few years since by the

board of Agriculture, entitled “ *Hints to Dairy Farmers* ;” being an account of the management, food, and produce of a single milch-cow kept by Mr. Cramp, keeper of the House of Correction at Lewes, in Sussex: an account which will prove to demonstration, and to the regret of every well-wisher of his country, that our dairy business, the product of which is so precious, and never equal to our consumption, is by no means managed in general, upon a profitable or the most productive plan. Cutting and carrying the green food for cows, was recommended many years ago; and I experienced its full warranted utility, with the exception that my cows, when entirely kept in the house, fell off with their milk, whilst they increased in flesh; but recovered their milk again, when allowed a range. Mr. Cramp, who so well merited the honorary silver medal of the Board, allowed his cow the small range in his power, and cultivated her green food within the verge of the prison. He also seems to have added, by his experience, a new milky breed to our old stock. His cow was a Sussex bred one, and in all probability, and in his opinion, that famous breed has not hitherto had a high dairy character

from mere disuse, and application, solely almost, to the purpose of rearing for beef.

Mr. Cramp's cow was seven years old, had produced five calves, and had been two years in his possession. She was fed in *summer* on clover, rye-grass, lucern, and carrots, three or four times a day. In *winter* with hay, bran, and grains, properly mixed, and often fed, particularly when milking. The manger kept clean, and no sour grains or rotten or mouldy vegetables given, on any account, and the cow never suffered to overcharge her stomach, but to be well filled, and kept with a good healthy appetite. She was never tied up, and always had her choice to lie abroad, or in the house. Always when milked, dripped clean to the last drop. Being so well kept, she went dry only seventeen days before calving. The country is under great obligation to Mr. Cramp, for such an example, by which it is hoped, our dairymen and housewives will not fail to profit. It is a useful practice of Mr. Cramp to give his cow a double-handful of *malt-dust*, mixed with a feed of grains and pollard, without exceeding that quantity of the malt-dust. Potatoes given to cows may be ground in a common apple-mill, or pounded in a trough.

Quantities of Milk and Butter produced by Mr. Cramp's Cow, between April 1807, and April 1808.

From 6th to 20th April—milk 8 quarts per day, butter 6lbs. per week. From April 21st to June 1st—milk 22 quarts per day, butter 18lbs. per week. From June 2d to October 5th—milk 20 quarts per day, butter 16lbs. per week. From October 6th, to November 30th—milk 15 quarts per day, butter 13lbs. per week. From December 1st to February 8th, 1808—milk 13 quarts per day, butter 11lbs. per week. From February 9th to March 14th—milk 10 quarts per day, butter 8lbs. per week. From March 15th to April 4th—milk 7 quarts per day, butter 5lbs. per week,—dry for calving.

Sale of the Year's Produce and Expenses.

Sale of calf 14 days old—butter at 1s. 4d.—skim-	£	s.	d.
milk at 1d. per quart—dung, valued at			
3l., in all	76	7	3
Total expenses, including 1l. 5s. for 10 Sacks			
Malt Combs, and a Farrier's Bill, 12s. 6d.	24	14	2
A year's net profit on a single cow,	£	51	13 1

A person resident at Scawby, near Brigg, purchased a cow, for which he paid twelve guineas : he kept her twelve years, in which time she bore twelve calves ; all of them were carefully reared, and sold at the times prices, and as a remarkable circumstance, he sold her at last for the same price she at first cost him.

THE DISEASES OF COWS.

The chief of these are—*scouring*, the *hoose*, or *chronic cough*, *foul in the foot*, *loss of cud*, *yellows*, *black and red water*, *clue-bound*, *milk fever*, *withering*. With respect to the above, and other diseases to which cows and calves may be subject, the best advice in my power to give to the reader, is the PREVENTION of them, which is, nine times out of ten, possible, and even easy, to those who possess the proper means for cattle-keeping; and in every view the cheapest and only profitable plan. With respect to medical remedies, I must again refer those who have occasion to employ them, to the “*General Treatise on Cattle, the Ox, the Sheep, and the Swine.*”

Bad keep, and exposure to cold, wet, and dirt, will bring scouring upon the cow, but should such a one chance to be purchased, the reverse of all those, with dry substantial food, will cure her, if sound. Cluebound generally arises from the beast feeding, or rather starving upon dry straw, and it will be cured by nourishing and opening food. The foul in the foot, may be occasioned by the animal being constantly kept in wet poachy grounds, or long dewy grass, during the autumnal or win-

ter seasons ; or from having been driven long journeys. It should be taken in time, when washing, cleanliness, and keeping the cow upon dry and clean layer, is the chief of the cure. Neglected, the cow never recovers the perfect use of her feet, and both her milking and feeding are thereby reduced. In *withering*, or retention of the *cleaning*, for any length of time, I have never known any remedy, which shews the necessity of due care at the time of calving. Malt-mashes, or half malt and half fine pollard, warm, are excellent cordial medicines for cows. In general, these useful animals will rarely be troubled with disease if constantly fed with a sufficiency of proper and nourishing food, and well sheltered during the winter season, from wet and cold, and from the effects of those atmospheric vicissitudes, to which our climate is so peculiarly liable.

SECTION XVII.

Bees.

PREVIOUSLY to the year 1787, although we had accidentally caught a swarm or two of bees, we had paid little attention to the culture of honey, our domestic occasions for that article being very limited : and in that year, whether or not the quantity collected or imported was so considerable, or the demand so reduced, the first and pure honey was sold in Hants, Essex, and various parts of the country, at and even under the price of two-pence per lb. The middle district of the county of Essex, in the vicinity of Bocking and Braintree, produces probably some of the best of English honey. It is usually collected from the growers, chiefly cottagers, by higglers in their carts, the present price about sixpence per pound, that of wax about eighteen or twenty-pence. Persons of property in a parish, desirous of promoting this object among the labourers, might very safely purchase their

articles at a somewhat higher price, and render the bee husbandry still more encouraging.

Such a PRICE as the first above quoted, affording the prospect of loss, in every view, instead of that of due remuneration, could not fail to damp the spirit of Apiarian culture on the ground of profit ; and perhaps we are to look to this fact generally, as the radical cause of the neglect of bees in Britain and Ireland, of which our enthusiastic Apiarians have been in the constant habit of complaining. The import of the foreign article cannot properly be adduced as an impediment, or rival to the growth of honey in this country, on the consideration of its constant superior price, since our native produce, if not generally preferred, is fully equal in quality to all purposes, domestic or medicinal, and since it is obvious, the home culture, if adequately pursued, would soon, not only prove sufficient for the national use, but would require the aid of an export trade. So far as I have considered the subject, in the course of a great number of years, this must be the invariable result ; thence there can be no temptation to push the bee culture in England to any great extent beyond its accustomed limits. An export trade in honey seems altogether out of

question, even absurd. The southern nations would always excel us in the fine, if not the solid, quality of the commodity, and all nations, in cheapness of production. In truth, the culture of this article to any commercial extent, is the object rather of countries abounding in forests and waste lands, and the labouring classes of which, are glad of any occupation to engage their spare time, and to make an addition to their scanty earnings : which is as much as to say, such a concern can never interest, in any material or extensive degree, the attention of a great agricultural and manufacturing nation.

On this side of the question, also, it has been urged that—"if the country were stocked with bees, to the utmost possible extent, it might be questionable, whether the diminution in produce of beef, mutton, and wool, hides and tallow, from the impoverishment of the pasture, would not more than compensate the return in value, from the increased production of honey and wax." These insects were formerly held, by their depredations on the *pollen* and *farina*, to detract from the fragrance and beauty of flowers, and to hasten their decay ; and by their operations on the blossoms of fruit-trees, depriving them of their necta-

ine juices, to occasion the withering and premature decay of much of the fruit. This ancient opinion receives some countenance from the fact asserted by our modern gardeners, that, if the flowers of any of the radish or *brassica* tribe, have been much laid upon by bees, the purity of the seed cannot be warranted. On the other hand, it is asserted that, the bee never deranges the flowers which it visits, or obstructs generation by injuring the little embryos ; and that it is even somewhat questionable whether those visits are not of great use in promoting the fructification of flowers and blossoms, by conveying the dust or seed of the male flowers, into the receptacle of the female ; and whether or not the sole use of the honey of plants may be merely to tempt insects.

Much of the above, on one side or the other, seems, at present, to consist of questionable speculation. One point, however, may be looked upon as established, bees have never yet been kept in this country, to such an extent as to produce any palpable injury to either our fields or our gardens : and as it is not very probable that they ever will be, the ascertainment of the fact in question is of the less consequence. Our object is to caution

the reader on the enthusiasm, however well intended, of the professed and too sanguine Apiarian, and to point out the true and rational grounds, on which the business of the hive may be pursued in this country, together with the best instructions in our power to furnish, for the attainment of success.

To come at once to the point: having the leading argument above, in view, it does not appear that to keep bees with the expectation of commercial profit, can possibly answer the ends of any but our labouring cottagers. Were the single county of Essex, Hants, or Surrey, to enter into this branch of rural economy, to the extent recommended by those writers, who, astride upon their hobby-horses, urge them forward with such eagerness and impetuosity, but for one successful season only, the price of honey and wax, during the succeeding, would be reduced to almost nothing; and the production, however intrinsically valuable, worth little else, might be bestowed as manure upon land. It must, however, be allowed, that a considerable sum is annually expended in the import of foreign honey; to the extent, it was averred, a few years since, of 240,000*l*.

The rational MOTIVES for keeping these in

teresting insects in England are, the gratification of natural and scientific curiosity, the national supply of their productions, and in particular, to form a necessary article in the rounding or completing the plan of a country-house, as sketched in our preface. The culture of the bee has been known and practised from almost the earliest ages of which we have any record, and its wonderful instinct, subtilty of contrivance, and proverbial industry, have never failed to attract the notice, and engage the investigation, of some of the most learned and enlightened men of every age. Indeed, the total neglect of the bee must appear, to the eye of reason and of science, as a barbarism and shame to any age or nation. The estimation in which this insect was held in ancient times, will be evident from the splendid character bestowed upon it by men most celebrated for their genius and learning,—Virgil styles the bee a ray of the divinity.—Plutarch calls it the magazine of virtues,—and Quintillian avers, that it is the greatest of geometricians. The effects of instinct in the bee, form one of nature's most marvellous exhibitions; and its governing attribute, is, in this respect, superior even to the boasted reason of man, which can enable it to con-

struct its habitations and needful offices, in the full exactitude of pure mathematics, independently of the aid of either rule, line, or compass. Our Shakspeare, the prince of poets, and the industrious bee for collecting all the sweets of poesy, thus beautifully, and with true practical correctness, describes the bee of nature.—

————— So work the honey bees ;
Creatures, that by a rule in nature, teach
The art of order to a peopled kingdom.
They have a king, and officers of sort ;
Where some like magistrates, correct at home ;
Others like merchants venture trades abroad ;
Others like soldiers, armed in their stings,
Make boot upon the summer's velvet buds,
Which pillage they with merry march bring home
To the tent royal of their emperor ;
Who, busied in his majesty, surveys
The singing masons building roofs of gold ;
The civil citizens kneading up the honey ;
The poor mechanic porters crowding in
Their heavy burdens at his narrow gate :
The sad-eyed justice, with his surly hum,
Delivering o'er to executors pale
The lazy yawning drone.

It is to be observed that, the principal bee, of which every community of these insects has one or more, was formerly styled the king ; which modern discoveries proving to be a female, have metamorphosed into a QUEEN.

The bee is one of those creatures destined by nature to congregate, like the human, and live in communities under the guidance of an inferior kind of reason, denominated instinct. Thus qualified, the bee wears out its extremely limited term of existence in unremitting labour, not for its own individual, but for the common benefit. And, according to the continued observations of studious and curious Apiarians, these insects are actuated by those leading passions which sway the human breast, and endowed with that degree of apprehension and discrimination, which enables them to know the persons of their attendants. The simple consideration of a close fellow-felling, in all respects, of suffering and enjoyment, between brute animals and man, should teach him the great and bounden duty of compassion and of mercy towards them.

The BEE, or honey-fly, according to naturalists, is of the fourth order of *Insects*, and has four wings; and the community or hive, contains three kinds, namely, the queen, or mother-bee, the drone, and the working-bee.

In examining the STRUCTURE of the common working-bee, says Buffon, the first remarkable part that offers, is the trunk, (*proboscis*,) which serves to extract the honey from

flowers. It is not formed like that of other flies, in the manner of a tube, through which the fluid is to be sucked up; but like a besom to sweep, or tongue to lick it up. The animal is also furnished with teeth, enabling it to elaborate the wax, which, like the honey, is gathered from blossoms. In the thighs of the hinder legs are found two cavities, fringed with hair, and into these, as into a basket, the bee deposits the pellets it has collected. Thus employed, it flies from flower to flower, increasing its store of honey and wax, until the pellet or ball upon each thigh acquires the size of a grain of pepper; when, having obtained a sufficient load, it returns homewards, making the best of its way to the hive.

The BELLY of the bee is divided into six rings, which, by slipping one over the other, shorten the dimensions of the body. Pliny held, that the body of the bee is furnished with pores, through which the animal breathes, and to this opinion, Lisle, the Agricultural writer, has assented. The contents of the insect's belly, besides the common intestines, are the honey-bag, the venom-bag, and the sting. The honey-bag is transparent as crystal, containing the honey which has been formed in the stomach, out of the substance brushed

from blossoms and flowers, by the *proboscis* of the bee: the greater part of this honey is deposited in the hive, being passed into the cells of the honey-combs, whilst the remainder serves for the insect's nourishment, as, during the summer or labouring season, it never touches the store laid by for winter.

The STING, which serves to defend this little animal from its enemies, is composed of three parts; the sheath and two darts, which are extremely small and penetrating. These darts have several small points, or barbs, like those of a fish-hook, which render the sting more painful, the darts rankling in the wound. Still, however, the infliction from such an instrument, would be very slight, had not the bee power to poison the wound. The sheath, which has a sharp point, makes the first impression, the darts act next, after which the venomous fluid is infused. The sheath sometimes urged, perhaps, by the degree of excitement in the insect, sticks so fast in the wound, that it is left behind, and causes more permanent inflammation. The bee, in consequence, soon after dies, from an eruption of the intestines. It might, on first consideration, appear well for mankind, if the bee had not the power of inflicting such wounds, but on farther reflec

tion, it will be found, that the little animal would have too many rivals in sharing the profits of its labours. Numerous other animals, fond of honey, and of obtaining it free cost, would intrude upon the sweets of the hive, without armed guardians for its protection. The venom of insects appears to be an original material in their composition, imparted to them by nature, for the purposes of defence or revenge, and not formed like honey, the ingredients of which are collected from without.

It has been observed, that bees are endowed with the faculty of knowing the persons familiar to them, which, indeed, seems sufficiently obvious from their power of distinguishing individually, their own kind, and their friends from their enemies. Instinct has placed them not only under one of the most regular of commonwealths, with a queen at their head, but instructed them so thoroughly, in the division of labour, and each of them in every separate branch of it, that each one indiscriminately engages in that part which may, at the moment, require his industry. Bees are weather-wise, and generally remain close at home, on their sense of the approach of unfavourable weather. Like all armed insects,

they are passionate, revengeful, and active, but will scarcely ever attack keepers who have been acknowledged by them, and who take care constantly to approach them quietly, and without roughness or cause of agitation. It appears, however, to be an ascertained fact, that there are persons who, probably from the peculiar scent of their perspiration, are either pleasing and attractive, or disgusting to the olfactory nerves of bees. Thence it has occasionally happened, that a swarm of bees shall have alighted upon the human head and face, and the patient being of the favoured class, not the slightest injury has been sustained; on the contrary, it has full often occurred that persons have been stung dangerously, and as it would seem revengefully, by these insects. It is perhaps the same with respect to strangers visiting an Apiary.

There are VARIETIES of the bee, more, I think, in other countries than in this, where we pay little attention to that matter. To the queen, or mother of the whole community, however, it is necessary for the intended bee master to give the strictest attention, as, without a queen, it is useless to possess a hive, since neither can the generation of fresh swarms proceed, nor will those which may be

present, labour, but either emigrate, or languish and die. It being then so necessary to have the distinguishing form and features of a queen familiarly in the eye, I shall give a description of her, and for correctness sake, from Mr. Huish, a most able, practical, and comprehensive writer on the subject.

The form of the QUEEN is wholly different from that of other bees. Like the drones, she neither has nor needs, the triangular store cavities in her hinder thighs, her teeth are smaller than those of the working bee, but larger than those of the drone, and she has no bunches of hair or bristle near her feet; she is longer in her body, and more tapering than the drone. Her belly is of a golden colour, and the upper part of her is of a brighter hue, than that of the common bee. But the most unerring rule to judge of the queen bee, is from the shortness of her wings, which extend only to the third ring of her body, whilst those of the working bees, and more particularly those of the drones, cover its whole length. Thus she flies with greater difficulty than the working bees; however, it is by accident, if in the course of her life, she may have any occasion for wings. She is said to be armed with a crooked sting, which yet she sel-

dom uses, or if ever, very lightly ; a provident care of nature, perhaps, for the protection of a personage of so great importance, from the fatality consequent upon that act.

The GENERATION of the bee and larger insects, contrary to that of the common fly, appears to be after the rule of fishes. According to the prevailing opinion, there is no sexual congress among bees, nor is the possibility conceivable, for obvious reasons. The queen lays the eggs, which are afterwards fecundated by the drones. Her body contains two ovaria or egg-bags, terminating in a common channel, which are filled during the breeding season. Her fruitfulness is almost beyond conception, and she continues to deposit eggs, as long as a cell remains vacant for them. The title of queen is a mere fiction ; she would be, with far more propriety, styled mother of the bees, as she really is ; for although her indispensable existence obtain for her, attendants, a kind of royal state, and even, as is said, musicians, she possesses not the smallest power above another individual of the hive, or any kind of direction in its concerns. As a proof of the veneration of these communities for royalty, should more than one queen remain, the supernumeraries are infallibly and loyally, massacred. The young queens never lay eggs

in the parent hive, but depart with the swarms, in order to find their place in a new establishment. Here again the murder of supernumerary queens takes place, so soon as that measure shall have become necessary.

The queen is hatched in a CELL of a totally different construction from that of any other bee. Her cell is perpendicular. Those both of the drones and working bees are horizontal. The cell of the drone is of an irregular form, that of the working, or common bee, a perfect hexagon. On the side of the middle combs the cell is constructed, which is destined to receive the egg, of which a young queen is to be born. It has been discovered by the curious, that nature imparts the wonderful faculty to the queen, of fore-knowing the kind of egg she is about to lay, and of chusing the particular cell in which it ought to be placed. A queen is known to lay four or five hundred eggs in a day.

Should the number of labouring bees be insufficient for the purpose of constructing the necessary cells, the queen will most probably forsake the hive, however well supplied with provision, and will be most ready to take this step in fine weather. All, or part of the stock will follow,—assisting her, it is averred, when

wearied, from being unaccustomed to flight, by bearing her up with their legs and wings. The old remedy to prevent this desertion, was to place empty combs in the hive, which does not always succeed, from the disgust taken by the queen. The preferable method is supposed to be, when there is a hive at hand, the colony of which has died during the season, to place over it the hive about to be deserted. The eggs left in the borrowed hive will thus be hatched, and a colony raised in sufficient numbers. The accidental death of the queen, or departure, will occasion the bees to forsake their hive.

The DRONE, or male bee, is the largest ; full at the extremity or tail, which the wings cover excepting a small angle which has a blackish appearance. Beneath, are two small protuberances, which are the supposed indications of the masculine gender. The drone, as every one knows, is left by nature unarmed, the organs of generation in him being found in the place of the sting in the working bee. The *antennæ* and *probosces* of the drones are shorter than those of the labouring bees, and their teeth smaller ; nor have they those cavities on the thighs, which distinguish the latter, their sole destined employment being the pro-

pagation of their kind, for which they are furnished with food from the common stock, towards the collection of which they never give, nor are expected to give, any assistance. The fate of the drone bees, is a singular proof of the instinctive predominance of the interested motive in animal nature, which may be traced equally to human nature in the savage state, and before the asperities of that state are mollified and worn away by the expansion and culture of the reasoning faculty. The drones are hatched at the beginning of the season, and having completed the duty of fecundating the eggs, they are all to a unit, towards the end of the same season, destroyed by their brethren the working bees, and their carcasses dragged from the hive. The mode in which this execution is perpetrated by the bees is said to be by driving the victims from their combs and weakening them by starvation, after which, they are finished by being bitten beneath the roots of the wings. This carnage continues during three or four days, and is seen in front of the hives. Several bees at once seize upon a drone; he makes no resistance, and they do not quit him until they have fulfilled nature's mission. The assassins should be assisted in their work, and a wooden spa-

tula will serve the purpose. The life of the drone thus extends, upon the average, but from May to the beginning of September. The drone is particularly distinguished by the humming noise which he makes in his flight. The number of them in a hive, proportional to its size and to the number of working bees, is from four or five hundred, to considerably upwards of a thousand. Keys says, in his *Bee Master's Farewell*, that a good swarm of bees ought to consist of a peck and half, or about thirty thousand in number. Many jokes have passed on the idea of measuring bees by the peck; nor does the correct tale of them by the thousand, appear a much more feasible undertaking.

The *common mule*, OR LABOURING BEE, is smaller than the drone, and its most obvious distinction is its complete snug covering, to the extremity of the tail, by its wings. Having no concern in generation, this bee is of no sex, neither male nor female. Its province is solely that of labour, of which it performs every species which is needful for the community. Gathering in the harvest from the flowers, constructing and filling the combs, feeding the young, murdering the useless, and preserving the hive in that state of cleanliness and neatness,

in which these industrious and astute insects take so great delight. This bee is furnished with natural implements, extensive and strong, in proportion to the labour which it has to perform. It has two hard teeth or jaws, which enable it to collect the wax, knead it, and construct the cells; also to remove any substance of which it is desirable to be ridded. The *proboscis*, of a shining chesnut hue, exclusive of its sweeping property, by which the farina of the blossom is attracted, is likewise furnished with a channel through which, by a muscular power in the organ, honey and liquids are drawn into the gullet. It is supposed that the collection of honey and farina, by the bee, are distinct operations, and that it never enters the hive laden with both.

It has been observed, that a good swarm should consist of a peck and a half of bees, or in round numbers, between forty and fifty thousand. Such a swarm, hived in May, will have bred many thousands, considering the number of eggs laid by the queen, before the end of June; and during the whole season, which extends nearly to Michaelmas, the number of bees hatched will, with common success, amount to nearly twenty thousand. These, added to the original number of the

swarm, will swell it to the amount perhaps of upwards of threescore thousand, at the conclusion of the season, (Michaelmas when the stock is either destroyed, or, technically speaking, deprived. Under the latter dispensation, the mortality of these insects is sufficiently great, since the numerous stock above stated, would not, in all probability, by Christmas, consist of many beyond five thousand. Even at Michaelmas there are seldom found, in a good stock, more than eight thousand. Thus the life of a working bee, upon the average, is not above six months; incessant labour, and the accidents to which insectile life is necessarily subject, contributing to this constant mortality. The bees bred at Michaelmas, and which nurse the young swarms in the succeeding spring, are supposed to be the longest lived, as not having been exhausted by labour during the first four months of their existence. It has been said, I know not upon what authority, that the life of a queen bee might extend to four years.

This may be as proper a place as any, for a few words of discussion on the old question of the expedience of destroying the bees, in order to take the honey, or *depriving* them, that is to say, *driving* them from the old to a fresh

hive. Mortimer, who wrote about a century since, adverts to this disputed point, and decides, from practice, in favour of the common method, destroying the bees. A late French and practical Apiarian writer holds the same opinion, for which he advances, apparently, cogent reasons. All our late English Apiarians, Mr. Huish at their head, oppose themselves redoubtably to the practice of destruction. As to the grand point, that of interest, little has been hitherto advanced on either side of a very preponderating nature. Under the system, almost universal, of destroying the bees, no deficiency of those insects, of which I have ever been apprised, has occurred. On the other hand, perhaps some small deterioration of the quality of the honey may accrue from the fumigation by which they are destroyed. As to the argument of humanity, it is by far too fine spun, to endure the wear and tear of ratiocination. Boasting, as we bipeds do, of our reason and all that, I shall not insist on the argument of the *lex talionis*, furnished by the cruel conduct of these half reasoning insects to their fellows. Yet, since drones are murdered, why not murder their murderers? Did we not suffocate them, their fragile lives would naturally cease in two or

three little months, or many of them would perish miserably, by the thousand accidents to which they are liable. The grand argument of Mr. Secretary Isaac—‘the Creator has not authorized me to destroy *one* without cause,’ is thoroughly seasoned with the flummery and blarney of modish pseudo-philanthropism. We find special *good cause* for the slaughter of lambs and calves, and of every living thing which it appears to be our interest to kill; and therein we follow a primary law of universal nature. The cowardly and irrational dread of putting a period to animal life, is the constant source of protracted and horrible animal misery. The most exquisite inflictions of savage barbarity, have never equalled, in effect, the slow and lingering tortures conferred upon unfortunate animals, by the graces of pseudo-philanthropy. In fine, let the bee-master make fair experiment of both the methods, and then his election. I shall anon give the common rules of both.

It may be perhaps worth a note, that in India, the hive has a sliding valve in the centre. When the hive is full, a great noise is made within and behind, which drives the bees out. The valve is then closed upon the bees, until the honey be removed.

Mr. Isaac, in his useful little tract, gives the following definition of a few Apiarian technicalities. I copy them as being rather more precise than those to which I have been generally accustomed. By *Colonies*, are to be understood bees in double or treble hives. *Stocks* designate bees generally, at the end of the season. All bees, from the season of hiving, till its conclusion at Michaelmas, are called *swarms*; subsequently, *stocks*, if in single hives; *colonies* if in double. A swarm having thrown out a swarm, becomes then a *stock*, although it may have been hived but a few weeks. Such superabundant swarming in this climate is disadvantageous. Swarming, generally, continues between two and three weeks. Mr. Brown, of Renfrew, N. B. had a hive which cast *three* swarms in 1807,—*five* swarms in 1808,—*three* swarms in 1809,—and *four* swarms in 1810, the parent hive still in good strength. In the year 1814, imported in the Aurora from Papenberg, honey 41 casks, 68cwt. 1qr. 23lbs. In another ship, 8424lbs. From Amsterdam, 4hhds. and 12 casks 50cwt. 2qrs. 14lbs.

The virtues of honey, and the various uses of wax, the staple articles of our subject, are too universally known to need recapitulation.

276 *Qualities of Foreign and British Honey.*

It is probable, however, that honey is better adapted to occasional and medicinal, than general dietetic use, and also that in some constitutions, it has the effect ascribed to it by the ancient naturalists, of exciting melancholy. Some twenty odd years since, during the early attempts to abolish the Slave trade, it was proposed to substitute the use of honey for that of sugar, which was stigmatized as the blood and sweat of human beings ; but the abolition of sugar, and of slavery, had then equal success. British honey is more solid, more apt to granulate and crystallize, and generally more pure and free from adulteration, than the fine Southern and Mediterranean species. The superiority of the latter, which is liquid, consists in its fine fragrant flavour, often scented of wild thyme and odoriferous herbs. The present retail price of the Minorca, or best foreign honey, in London, is three shillings per lb., of the English, equally good perhaps in essentials, two shillings. Dr. Reece tells me, that in his late experiment of distilling honey, comparatively with sugar, a pound of honey yielded considerably more alcohol or spirit, than a pound of sugar.

Of Wax, the consumption is, necessarily, far more extensive than of honey, and of the

former this country has always stood in need of a considerable import, a circumstance not to be regretted, since there must be some commercial reciprocity, or how is commerce itself to subsist? In Mortimer's time, we find wax was an article of never-failing ready sale, and the price was then from five to six pounds per cwt. the present, from twelve to sixteen guineas. The method to obtain pure wax, is to preserve the hives constantly free from water and damp, and indeed, all foulness; to insure which, they must not be retained in use, after becoming worn with decay. Perhaps wax is merely the deposit after the elaboration of honey in the stomach of the bee, the natural vessel, in which the farina and pollen of flowers are brewed into honey.

Propolis is that viscous matter or cement, of the nature of wax, or derived from it, notwithstanding its viscosity, with which bees, as they are commencing labour, glue up all the crevices of the hive. It is also the sole material of which the combs are constructed. *Sheteam* is metaphorical, derived from its use of defending the *outworks*, the Greek word bearing that signification. This somewhat ductile substance is of a dark brown and sometimes auburn hue, and in countries abounding with

odoriferous flowers and shrubs, it emits a grateful perfume. It is of a resinous quality, and has medicinal uses; is also a varnish of superior kind. It is efficacious in hoarseness, appeasing the cough.

Undoubtedly, the best and most promising situation for establishing an Apiary, is the vicinity of woods and commons, and of running water, rather than of large lakes or rivers, in which the bees, when drinking, are often driven away and perish. A dry air and a light soil, productive of odoriferous shrubs, are also, perhaps, essential to the production of the best honey and the finest wax; but as bees are little injured by cold, they may be kept upon any soil which will feed them, on the condition of their being preserved free from moisture and damps. The bee will travel to the distance of four miles, in search of food, guided by an instinctive power of smelling at a distance, that which is most agreeable to its nature. It has the labour of returning home laden, and of repeating that labour through the day. All keepers of bees, therefore, who desire to profit by them, should plant to a certain degree for their provision, perhaps in any situation; but in those which are unfavourable, ample successions of those shrubs, flow-

ers, or plants, most agreeable to their taste, should be cultivated. It is obvious, the shorter journeys the bees have to make, the quicker and more ample will be their returns, and that chosen food of the best species must also contribute to excellence in the quality, as well as the utmost increase in quantity, of the honey and wax produced. Hereafter follows a list of the chief articles of bee food, which may easily be enlarged, if necessary, by enquiries in the country.

Lisle and the old Bee-masters recommend turnips to be kept, the blossoms of which are the earliest spring food; the meadow and hedge row flowers soon succeed. The blossoms in May, of all fruit trees; all of the turpentine or pine class, and the Linden tree. Vetches, beans, white clover, lucern, and sanfoin; but it is said the humble bee only, is able to feed on broad clover, from the length of its proboscis. Buck wheat is an article of great consequence, where food is raised expressly for the use of bees. Heath, furze, and broom stand in the first rank, as most sought and most salubrious to the insects. With the view of imparting a fragrantcy of flavour to the honey, the odoriferous shrubs, thyme, lavender, sweet marjoram, and their like, with

stawberries and raspberries, should be planted. The sun-flower, holly-hock, and poppy. Burrage-flowers, from their long blooming, are of the greatest use. Marsh-mallows abound in farina. Melilot, a biennial plant found in hedges and underwood, which flowers in July, is much sought by bees, and greatly productive of honey. It was formerly said to equal lucern as food for horses, thence worthy of a modern trial. Mignonette is supposed to be the richest in honey of all flowers. Pinks and July-flowers. Cabbages and Cauliflowers. In Autumn, Oak-leaves, and those of all trees in which the honey-dew is found.

The Apiary should be fixed in a dry and sheltered situation, and so far detached that it may be well defended from every kind of vermin, the bee having many enemies. A south-west aspect is recommended by the elder Apiarians, on the ground that, from the south-east, the bees are disturbed too early, and thence do not work so late in the evening, by which they are losers. Whether the use or curiosity of this idea predominate, I have not sufficient experience to decide; but certainly in some situations a S. W. aspect may be improper, and shelter from high winds is at any rate, indispensable. The apiary should not stand in

a near distance to shrubs or plants of a height equal to the entrance of the hives, which may impede the flight of the bees heavily laden, on their return home: nevertheless, low trees, shrubs, bushes, and espaliers, close at hand, are necessary, on which the swarms may alight. The bee-house or hives should be so posited, that access may be had around them for the purpose of detecting or removing any nuisance; and the ground should be kept free from weeds, or an harbour of vermin, and in a state of perfect neatness, in which the bees delight. Gravel walks and flower borders, are the useful and the ornamental of the apiary.

HIVES either stand in a bee-house, box, or shed, or under a thatched or some kind of roof. The stand on which the hive is placed, should always be kept clean, particularly so in the spring, at the commencement of the working season. In short, all impurities should be removed from within and without the hive, in order to save the cleanly insects the unprofitable labour of the removal of nuisances. Bees in health, never evacuate any excrement, but in the mode of perspiration; yet as they are never benumbed and dormant, they constantly feed.

BEE-HIVES have ever varied much, both in

their form, and the materials of which they have been constructed. In the natural state, these Insects, in course, take possession of any hollow vacant spot, convenient for their domicile and laboratory—a hollow tree—chasm in the rock or bank—or the wall or roof of a deserted building. In such places they inclose themselves, always dwelling and labouring in the dark. Taken under the protection of man, they will remain in any kind of dwelling appropriate to their purpose, and hives have been made of wood, for example, of a cask ; of wicker work plastered, and of straw: the latter material in England particularly, has long had the preference. There are glass hives, for the purpose of inspection. Common straw hives are to be had in any part of the country ; in London, the price of them is half a crown, and three shillings per lb. extra, for any glass in them which may be required.

Apiarians have not yet agreed on the most advantageous form of the hive, a great number of them tasking their invention, and each recommending his own form. Mr. Huish, as the last, ought to be, on that account, and from his great practice is, most to be depended on in this particular. Indeed, he is the author to be studied by those who are ambi-

tious of obtaining a complete theoretical and practical knowledge of bees; his Cottager's Manual, and that of Isaac's, being equally convenient for those to whose use they are addressed. The Huish hive is circular, in shape like the old bushel or skep basket, having a convex top or cover, with the great convenience of being moveable, and which is sufficiently plastered to prevent the admission of light into the hive. This hive is materially calculated for the plan of deprivation and preserving the bees. On either plan it appears also to be superior. Mr. Huish, as Mortimer formerly, decries the common method of placing hives upon benches, from the dangerous and fatal quarrels to which it exposes the bees, and other objections, preferring to place them upon separate stools or pedestals of wood, in addition to which, Mr. Huish has invented a chain, which encompasses the hive, and is locked to the pedestal as a security against robbers. The back part of the hive may be fixed within half an inch, or an inch, of the edge of the pedestal; but in front a space of three or four inches is necessary as a landing place, on which the bees may alight.

The hives should be ranged in a right line, fronting, as has been said, the S.E. or S.W.

They may be placed two feet apart, and about the same distance from the ground. Should the apiary be extensive, and the hives stand in double rows, Mr. Huish advises the chequered form—

0 0 0 0 0 0
0 0 0 0 0

In which mode, the flight of the bees in the hinder row, will not be obstructed by the front hives. A bee taking flight from the hive, generally forms a considerable angle with the horizon in his ascent ; and should the hive stand at too great a degree of elevation, the advantage would enable the swarm to take so extensive a flight, that they might never be able to return. But if the site be not sufficiently extensive, to admit of the hives being placed in a right line, it is preferable to set them one over another in double rows. The pedestal or stool, should have but a single leg or support, and its top, on which the hive is to stand, should be made of seasoned and substantial wood, which will not warp, and which should be firmly nailed to the post, in a slanting direction, in order that the rain may run off, all stagnant moisture being highly inimical to bees.

Every possible method should be taken to

prevent the access on the lodgment, in, or near the hive, of the various ENEMIES of the bee—ants, moths, spiders, wasps; of these the moth and the ant are the most destructive. Many birds, also, beside the tom-tit and sparrow, are bee-killers, with which may be joined the toad. The chief difficulty lies with the moth, the ant, and the wasp, in Autumn. When the moth has obtained a considerable footing, the bees will quit their hive. The prey of the moth is supposed to be the pollen, or bee-bread, in store, and the heterogeneous refuse attached to the wax. A timely renewal of hives appears to be the only real remedy—to join the bees to another hive, and save the little left by the depredators. The too fatal sign, according to Huish, of a hive taken possession of by the moth, is an inaction of the bees, during ten days or a fortnight, whilst the bees of other hives are in activity. The ascent of ants may be prevented by tarring the lower part of the hive pedestals, and constantly repeating it when too dry. In a thickly cultivated country, like England, it is an enormous scandal to breed and feed wasps, when the fact is known, that to destroy a queen wasp in March or April, is to prevent the hatching of a whole nest. Thus, if all the

queen wasps in a country were destroyed, the whole race would be exterminated, and had effective measures been taken, as with wolves formerly, our country might at this day have been as free from wasps as wolves. The queen is known by her superior size and greater brilliancy of colour, beyond the common wasp. Merely stopping up the outlets of a wasp's nest is not at all to be depended on; sulphur and gunpowder are the only specifics. It has been ludicrously said, that were the bee-culture, in a country like this, carried to the extent recommended by our sanguine Apiarians, the honey-bee would, in no great length of time, become as great and dangerous a nuisance as the wasp.

To keep bees in the common mode of our own country, and I suppose of all others, is an occupation of little trouble, and of trifling, uncertain gain. To manage the Apiarian husbandry with effect, is a work, although not of expensive outlay, which requires much attention and indefatigable vigilance, at certain seasons most particularly. Our country labourers, who have wives and children to assist in this business, are the part of our population most probable to be benefited by it. It should be encouraged among them by their employers,

and a market always found in the parish for their honey and wax. This, however, at present, is in few parts defective. Mr. Mavor, in his account of Berkshire, some years since, relates, that a poor cottager cleared in one season, TWENTY-SEVEN POUNDS by his bees: such a prize, I apprehend, has been seldom drawn in that lottery; but a poor family, with care, might almost depend on saving the amount of their rent, perhaps of their shoe-leather into the bargain. Rare instances have happened, in our Western Counties, of a hive producing forty pounds of honey in the season; twenty, down to twelve or fourteen pounds, are far more in course. But superior culture and attention will promote superior quantities to the common, of honey and wax. Of the latter, one pound and a half per hive, is the usual product.

In the year 1822, remarkable for early honey gathering, several Oxfordshire Apiarians had stocks, the gross weight of which, was from sixty to sixty-seven pounds. In Lincolnshire, seven swarms were obtained from two old hives: that is to say, two top swarms, two second swarms, and from the two top swarms, two virgin swarms, and from the latter, a second virgin swarm. The first swarm

was hived May 2, the last June 27. Another hive threw out four swarms within sixteen days. As Mr. Thomas French, of Iken Hall, Suffolk, was passing through Tunstall, a swarm of bees alighted on him and rolled into his coat-pocket; he threw off his coat, and the bees were hived from it, without doing him any harm. *Farmers' Journal*. It is to be hoped Mr. French has, and will continue to enjoy the full benefit of this *lucky* occurrence.

At, or not long after Michaelmas, is the proper time to move stocks of bees; or, in the spring, not later than the beginning of March. The purchaser must be guided by the weight of the hives, and that the stocks be not aged and decaying. However, on this occasion, and indeed on the general Apiarian management, a beginner should make use of a practical guide, no matter of how illiterate a cast, since many of the country bee-keepers are sufficiently *au fait* as to common practice; and since growing experience, and a reference to books, will prove a certain antidote to vulgar prejudice. This case is parallel with that of the purchase of a horse. It is impossible to judge of the value of a hive, but by a close and minute examination of it within doors,

which can only be made by a person accustomed to bees, who possesses a good portion of the famed virtue of Job, and is not too delicate in the skin and flesh. Some have used a net-work covering for the head and face, and most follow the good old custom of fortifying themselves with a draught or two of strong beer, anointing also their hands and face therewith. The exterior of the hive, the straw, should be fresh and sound. Internally the middle combs should be of a golden hue, pale yellow, by no means black, the sign of age. If there be many queen cells, the hive is old and decaying. If the sides of the combs appear gnawed, it is an indication that the moths have got possession of the hive, of course, the purchase must be rejected. There is the advantage in a spring purchase, that the bees may be seen at work and judged of, but perhaps the difficulty of moving is the greater. A loud humming and much bustle, and fresh exterior of the hive, are the best signs. A hive in February ought to weigh fifteen, at least twelve pounds; in autumn, thirty pounds. But if an old hive, the quantity of bee-bread or farina, the heaviest substance in the hive, will constitute too much of the weight; and so too much of a useless

raw material will be purchased instead of honey.

The object next to purchase, is the REMOVAL of the bargain homewards, which is always effected most conveniently and safely by water-carriage. Where land-carriage is necessary, it is managed by two men, having a pole between them, upon which the hive, wrapped in a sheet, is slung. It must not be carried on the head, for fear of misplacing or breaking the combs and losing the honey. The entrance of the hive must be previously closed with a tin-plate, pierced with small holes to prevent suffocation of the bees. At the period which I have quoted, of the excessive cheapness of honey, I refused hives in Hampshire, at five and seven shillings each; the price at present is from ten to twenty shillings, keepers obtaining, in the country, from one shilling to fifteen-pence per lb. for their best honey. It seldom succeeds to keep bees in proximity to a large town.

In our climate, although the bees may SWARM several times in a season, it is found that, the first swarm only is worth preserving. A new hive should be fumigated with sulphur, previously to the introduction of the swarm, and as the first labour of these wonderful in-

sects is to sweep and garnish their dwellings, and remove all obstacles to their industry, as much as possible of this labour must be done for them, by rubbing the interior of the hive with a hard brush, in order to remove all loose and projecting straws.

The spring and summer duty of the Apiarian, is to watch the daily motions and journeys of his bees, to protect them from enemies, to confine them at home in storms, to secure the swarms, and move them temporarily, on the want of food near home, to more plentiful quarters, which is customarily done with safety and success. In the winter months, the chief care is to feed the stock when needful, and to protect them from every annoyance, particularly that of damps and moisture, and the melting of snow. Mr. Roberts, of Battel, Sussex, had a hive of bees, which swarmed in the last week of February, 1822, one of the mildest winters on record, all over Europe. But mild winters, from the moist state of the atmosphere, are inimical to bees; the clear and frosty, favourable, whence the apiary may prosper in a northern climate. In warm and dry summers, by consequence, the greatest produce of honey and wax is made, and most swarms cast, after the rule of warmer climates, so superior

to ours in the quantity of those productions. Nevertheless, excessive solar heat is prejudicial to bees.

The months of MAY and JUNE are to be watched for swarms, the course of those swarms also to be watched, that they may be lived. Bees do not swarm until the hive be full. The sign of the approaching departure of a swarm is, the bees cluster and hang about the exterior of the hive, calling each other with shrill notes, and the whole hive seems in great commotion. Windy weather is most unfortunate for the young swarms, which may be blown beyond possibility of recovery. A small hive generally swarms earlier than a large one. In course, new hives will have been provided for the swarms. The raise and departure of a swarm is a most curious and gratifying, and, to a degree, anxious spectacle to the proprietor. The first part of the swarm, on quitting their native hive, makes a short flight and then returns, joining the great multitude which ascends, parading and circling the expanse, in thousands and tens of thousands. After this ceremony, attending their queen, the whole swarm departs for some domicile or resting place, which has already been chosen by scouts sent out for that purpose. This is the critical

branch of Apiarian business. The departure of swarms must be watched efficiently, throughout the whole day, or they will make their exit unseen, and may be totally lost. This seldom happens when they are duly followed, as they are unlikely to travel very far, and generally alight upon a tree or some accessible spot. They are said to fly after the rate of a mile in two minutes. The accustomed music of warming pans and tongs on this occasion, is an ancient fallacy of no kind of use; or was perhaps originally practised to announce the proprietor's title to the swarm, which he had a right to follow into other persons' grounds. A swarm, in its flight, fixing upon any unfortunate animal, is almost certain destruction to it; and among numerous previous examples, a valuable horse has been so destroyed in the present season.

Early drones, early swarms—new swarm, new hive: the latter ought to be an indispensable Apiarian rule, though so often infringed by cottagers, who do not scruple to swarm their bees in old shattered hives, already swarming with vermin. The swarm being overtaken should be hived with all possible expedition, least they take a second flight. This duty can better be performed by experienced workmen

or women, than here described. The hive should always, if possible, be put under the swarm, and the bees shaken or brushed into it with a goose wing or bow. The hive is then to be covered with a sheet or table cloth. On this and all similar cases of danger from the sting of the insects, the too common practice of acting without cover for the exposed parts of the body, is most rash and unprofitable. The injury received may be considerable, and besides, a person without defence cannot act with the necessary coolness and effect. The neck, hands, and legs should be covered, the face defended by a mask of thin iron wire, and a linen hood or cloth thrown over the cap upon the head, the hood to fall and be fastened below the shoulders. The swarm may divide itself into several clusters, in which case there are several queens; on being hived together, the bees will kill the supernumerary queens. But when an undivided swarm is hived and the bees are restless and discontented, it may be judged that they have no queen, in course, that they will not remain. A queen must be immediately provided for them from the parent stock. Queens are discovered by their being surrounded by small groups of bees. First swarms from different hives uniting,

must be separated. Second swarms uniting may be hived together.

DEPRIVING, or gathering the harvest of honey from the hive, should be performed in August, immediately after the swarming season, for which Huish gives the satisfactory reason, that the bees, from that period to October, may replenish the vacuum left in the hive. The improved hive is far the most, perhaps the only convenient form for this practice, which is sufficiently simple and easy. Ascertain the weight of the hive, and the quantity of honey-comb proper to be extracted, and commence the operation as early in the evening as the bees shall be at rest. Revert the full hive, and place an empty one of precisely the same diameter over it; being fitted, that the bees cannot escape, tie a large sheet or cloth round them where they join. Beat the sides of the full hive with the hand or a stick, in those parts to which the combs are attached, parallel with the entrance. The bees alarmed, will all ascend into the new hive in a few minutes, which will be known by a general humming, and they may be then placed upon the pedestal. The old hive must be then taken in doors and the honey-comb cut out *secundum artem*, and to the proper extent, leaving the bees a winter

store. Attention should be paid, not to cut into two or three combs at once, but having commenced cutting one, to pursue it to the top of the hive. This business finished, the hive should be inspected and made perfectly clean. It may now be returned to its pedestal, and the other hive containing the bees being reversed, the old one placed over it, and being so left till morning, the bees will be then found in their native domicile.

The common mode of destroying bees by SUFFOCATION, in order to take the whole produce of the hive, is as follows. Every crack or crevice in the hive must, in the first place, be closed with mortar, clay, or cow-dung; sulphur is then placed at the entrance, and a red hot poker passed through it into the hive, and moved backwards and forward, whilst the smoke is blown in with a pair of bellows. The bees will instantly set up the death cry, which ceases with equal haste. Close the entrance of the hive during a few minutes, and beat against it to cause the bees to fall. All noise within having ceased, take up the hive and brush the remaining carcasses into a tub of water. The fume of the sulphur is said to injure the quality of the honey, but that opinion certainly is not corroborated by the ex-

perience or complaint of the body of consumers, although perhaps nine parts in ten of the honey consumed is obtained by suffocating bees.

Drawing off the virgin or first honey, squeezing the second sort, management of the wax, and storing the whole, must necessarily be confined to practical and experienced hands; and with respect to those Apiarians who are desirous of entering extensively into the culture, their own personal attention will be necessary, and they will find their account in proceeding with Mr. Huish's comprehensive Treatise in their hands. A considerable stock will require a storehouse or room, expressly for the purpose, having a south aspect; and the bees, should they have been suffered to live, should be completely shut out, as they will instantly smell the sweet spoil and soon cover it, if admitted. Earthen vessels, horse-hair cloths, linen cloths for pressing, buckets, or glazed earthen two-handled vessels, are the implements for use, and clean washed hands and general cleanliness are highly necessary. The combs are cut into small pieces, always best in a horizontal direction, that is, not across the middle, but twice at the top and the bottom. Warm sunny weather suits this operation best. All the utensils, cloths, &c. should be

taken to the Apiary, after having been used, when the bees will clear them of every sweet particle left: but this should be performed in the morning of a fine day, and no old or candied honey should be given them, because it daubs and adheres to their feet and bodies, and may destroy them. In this country, one hundred pounds of honey-comb will yield from three to five or six pounds of wax; in some of the southern countries nearly double that quantity. Transparent white honey is to be preferred to the higher coloured; new to old, and that of the spring to the summer or autumnal honey.

The **WAX** being crumbled or pressed, must be boiled in water, and then strained from bags into a tub of water. The water being strained when the wax is cold, it may be collected, boiled, and when cool, will be found in a cake on the surface. It is refined by repeated boilings in fair water.

Some writers hold, that **FEEDING** bees is of little consequence, their own honey being sufficient and the most proper food. However, few bee keepers but have the occasional necessity in hard winters, stormy weather, and during the weakness of a stock. Sweet aliments are natural to bees, as sugar and beer, sugar sops,

sweet worts, refuse honey ; for dry meat, bean flower, or that mixed with any sweet ingredient. The mode of feeding, is by placing the viands on a grooved board, upon which the hive is set.

The chief DISEASES of bees, generally arising from damps, cold, or poverty, and occasionally from the excessive heat of the sun, when shelter is necessary for the hive—are dysentery, or looseness, torpor, falling in flight from vertigo, or giddiness, lice. Care and good feeding seem to be the only remedies, on which much dependence can be placed. Good old red port mixed with honey, and toast soaked in old beer, are the chief specifics in repute.

Keepers of bees should always have at hand, pure olive oil as a remedy for the STING of those insects, to be dropped instantly on the wound : or Venice treacle, which some mix with oil. The juice of onions and salt mixed are also used for the same purpose.

To STORE, or preserve honey, the vessels or jars in which it is kept, should be well and tightly covered or corked, and the store-room be quite dry, as honey imbibes damps, by which it is deteriorated in quality, and in the end turns sour. Honey is often adulterated with flour and similar substances, to increase its weight.

To clarify honey, place the vessel containing the honey in hot water, and take off the scum as long as any arise, afterwards stop close.

METHEGLIN, or MEAD. The common drink of this name, is a mere unfermented mixture of honey and water. Economists since the linens which have been used for filtering the honey in this mixture. The fermented mead is made in the proportion of one pound of honey to three pints of water; or by boiling over a moderate fire, to two thirds of the quantity, three parts water and one part honey. The liquor is then skimmed and casked, care being taken to keep the cask full while fermenting. During the fermenting process, the cask is left unstopped and exposed to the sun, or in a warm room, until the working ceases. The cask is then bunged, and a few months in the cellar, renders it fit for use. Mead is rendered more vinous and pleasant, by the addition of cut raisins, or other fruits, boiled after the rate of half a pound of raisins to six pounds of honey, with a toasted crust of bread, an ounce of salt of tartar in a glass of brandy, being added to the liquor when casked; to which some add five or six drops of the essence of cinnamon; others, pieces of lemon peel with various syrups.

SECTION XVIII.

The Private Brewery.

MALT LIQUOR, or BEER, is styled the natural beverage of Englishmen: which being rendered into plain English, will stand thus—our country produces the materials, and custom, almost immemorial, has established the manufacture, and sanctioned its universal use. There is, moreover, another sanction of superior rationality to mere custom. The quality of genuine malt liquor, when of sufficient age, but *not old*, is peculiarly nutritious, adapted to the moist and variable climate, and to the constitutions of the people of this country. To speak first of the public brewery. It is to be lamented, that commercial and fiscal interests have interfered, most mischievously, in this great article of human subsistence. The brewery represents one of our most considerable and profitable manufacturing concerns; from its universality, the most convenient and ready instrument of taxation. The

consequence has been, that the health and interest of the people have, on every occasion, been sacrificed to fiscal and trading profit. The exigencies of the state have demanded an enormous impost on malt. This the brewers cannot afford to pay, preserving at the same time their commodity at the fair standard of quality, without a rise of price too considerable for the ability of the great body of consumers. Other measures must then be resorted to. Scientific and chemical aid is, therefore, had recourse to, in order to enable the brewer to find substitutes for the prime material, and draw a greater length from the usual quantity of malt: in plain terms, to produce a factitious or composition beer, from the least possible quantity of the most precious article. Thus taxed, malt has given place to less salubrious and substantial articles, and to untaxed and potent drugs; and, unfortunately for the health and habits of the people, the beer of commerce has been, too generally, an intoxicating and stupifying, instead of an exhilarant and nutritious drink; and to crown the evil, the public taste has been vitiated, and adulterated beer has long since obtained a decided preference over the genuine and simple product of malt and hops. The nature

of this composition, has generally depended on the skill or ability of the brewer. With some, it has proved a liquor of luscious flavour, impregnated with a fiery, inebriating spirit; with others, a vile, mawkish, ill-flavoured balderdash, to use a vulgar phrase, which experience has rendered but too appropriate, of the true rot-gut quality. In justice to the common brewers, it must be acknowledged that, on the occasion of a fall in the price of malt, they have customarily improved the quality of their beer. The origin of the grievance may doubtless be traced to excessive taxation, which, so materially enhancing the first cost of malt, must also operate considerably in prevention of that part of the labouring classes, disposed to brew their own beer, from so doing; since the wages of the labourer, the agricultural more especially, are seldom permitted to have their spontaneous and independent rise, in proportion with the advance of the first necessities. The natural, indeed unavoidable, consequence is, a resort to the public-house, where habits of society are acquired, seldom to be afterwards eradicated; and enjoyments experienced, of a very different nature and consequence to those which a man finds in a sober and economical home.

In this introductory part of the subject of private brewing, I feel it necessary to remark on the usual mode of treating it, and on the, in my estimation, rather too sanguine expectations of its advocates, who appear to entertain hopes of inducing, by their arguments, almost every family, without distinction or exception, to brew their own beer. My aim is, to separate the declamatory and impracticable from the rational and useful; to address the soundest and best of those instructions, with which long experience and observation have furnished me, to those persons and quarters only, where I know them to be really applicable. That noble national manufacture, the public brewery of civilized and commercial England, has long subsisted and flourished, and must continue so to do, in full and increasing prosperity, as long as beer is the staple beverage of the country, and so considerable an article of export trade. Houses of public entertainment, or ale-houses also, there always must be in a great commercial and luxurious nation; and it is against the abuse of these solely, that the objections and complaints of the economical writer can have any force. To digress for a moment: it is not because we have brewhouses and alehouses, or

on account of the number of the latter, that the manners of our commonalty are corrupt and dissolute ; the fundamental cause subsists in the excess of taxation, and the general inadequacy of the wages of labour. Hence is generated a desperation leading to indolence, the neglect of social duties, and ultimately, or rather by consequence, to crime. The favourite plan of removing taxation, shifting it from one article or class to another, can have only a palliative, temporary, and deceptive effect ; nothing short of economizing the expenses of the state, and rendering the means of living more easily attainable, can lay the axe to the root of that quantum which remains, of national difficulty and distress.

Throughout the country, and among the classes of property, from the highest to the lowest degree, the custom of private brewing has been immemorial and nearly universal. It is a favourite topic of the present day, to warrant something similar of the country labourers of former and better times. So far as my recollection extends, I have never known such a custom to be general, but prevailing only, in any considerable degree, in the rich counties, and even in those confined to the best paid and most provident labourers.

In the poor counties, and where wages were low, very little ability subsisted among the labourers, to supply themselves with home-brewed beer, three score years ago. Within my knowledge, it was a thing constantly attempted, and periodically relinquished, from want of funds. Casks could not always be obtained, and the drink was therefore to be used from the tubs, which, in due time, from defect of the means to procure malt, stood rotting without doors. Granting, indeed, a bold push to be made by virtue of some saving or *god-send*, how could a wretched family contrive to brew, upon such wages as five or six shillings per week, the then standard in the Western Counties? Certainly, the practice has greatly diminished since, and its opposite, of purchasing beer, greatly increased, to a lamentable deterioration of the morals of the country labourers, whose advance in the scale of society is devoutly to be wished, and to whom the custom of brewing their own beer is peculiarly appropriate; and with respect to their health and well-doing, indispensable.

The present topic of the comforts of the labouring classes naturally introduces the modern, but now universal, habit of drinking TEA.

The late Mr. Arthur Young, with perhaps a less profound attention than he usually bestowed on his subjects, took every opportunity of expressing his unwillingness to allow to the sons and daughters of labour, their share in this common privilege; and Mr. Young, I observe, has successors in this opinion. Tea-making, it is objected, is a great consumer of time, and the beverage itself, a debilitant, rendering those who use it, delicate and unfit for labour. It may be replied, that the most expeditious meals, necessarily, consume time; that, in order to make the too often bitter draught of labour go down, and more especially when so much of the *sic vos non vobis*, is intermingled with it, and so insure a degree of cheerfulness and good-will, some portion of respite and relaxation is necessary. Tea is certainly a mere diluent and detergent, altogether devoid of the nutritive properties of beer; it is, at the same time, a cooling, sedative, and refreshing drink, extremely agreeable and cleansing to the stomachs of those who are fed with the most ordinary, the hardest, and coarsest provisions. As a relaxent, it often proves equally beneficial as agreeable to the robust, and to those of the rigid fibre. Nor have I ever known an able labourer, or any well-fed la-

bourer, injured in his strength by the custom of drinking tea. A partiality for this Asiatic herb, has long since taken possession of the whole people of this country; and, I must confess, I see no reason for attempting to divest the great majority of their share of a common right, which really ought, in this commercial country, to be within the compass of their means. Why tea should be three times dearer in this, than in other trading countries, I see no legitimate reason; unless it be such, to favour a monopoly, contemporaneously with which, but not through which, British commerce has flourished. This is a subject, however, on which writers may spare their labour. The people *will not* leave off tea-drinking. Another bootless topic is the declamation against the potatoe-root, beyond question the most valuable of all edible roots, and the only efficient substitute for bread. Men will declaim—preserve me from a potatoe-fed population! Amen—and from a bread and water fed population likewise. But either bread or potatoes, indifferently, substantiated with a *quantum sufficit* of flesh-meat, will amply and sufficiently feed any population. In the mean time, the qualities of the potatoe have been greatly overrated by our modern chemical theorists.

In towns, it cannot be rationally expected, that the private brewery should prevail in an equal degree with the country; least of all in the metropolis, including people of every rank. There is neither sufficient room, nor leisure, nor necessity, for the practice. There are, farthermore, greater excitements in towns for the purchase of beer, in the density of society, the proximity of numbers of public houses, and the superior quality of the beer to be obtained. These reasons must always operate against private brewing in the metropolis, and the populous manufacturing districts of the country.

The periods of war and scarcity, when the price of beer has advanced, and its quality proportionally receded, always offer some, but a temporary counteraction to the custom of purchasing. Citizens then, including those labourers who can possibly eke out the room and the money, begin brewing. The system continues, so long as the funds can be found, or the home-brewed maggot survives or continues to bite. Anon comes the change. The poor in towns, as well as in the country, find solid reasons, already stated, for giving up brewing. Nor are the people of property behind hand; they have no leisure, generally, to pay a personal attention, but must

trust to a labouring brewer, who now and then spoils them a stock of beer. The enthusiasm for brewing their own beer now cools, wearisomeness and disgust succeed ; and they find that beer may be purchased, at a much dearer rate indeed, comparatively no object to them, more agreeable to their palate, without the trouble and fuss of brewing at home. Away then, go mash tun and coolers, casks and all, and the poor copper is left in pristine solitude!

Among the obstacles to private brewing, the most redoubtable of all, certainly, must not be overlooked. It is the universal predilection, both of the natives, and foreigners who visit this country, for LONDON PORTER, which no private family, so far as I have heard, has succeeded in brewing to perfection. It is within my memory, I believe, that drinking porter became universal ; but the old ‘ butt beer,’ has assumed the name of porter, perhaps, a century past. TWO-PENNY and ROMAN PURL have had their day. KEEPING small beer was formerly in phrase and in use, at London, where fine ales have immemorially been brewed, and where may be also found the ales of every brewing district of the country. Act of Parliament, or table ale, has lately come into

vogue, but they all give place, in public estimation and consumption, to porter. This favourite beverage, however, is condemned by the physicians, as productive of bilious and liver complaints, and injurious to the female complexion. Porter is a compound drink, in which indeed, brown, or high-dried malt is a principal ingredient, but in aid of which, certain other ingredients, far less costly, but not absolutely noxious, seem, in these days, to be deemed allowable, or rather essential in the manufacture of this *cerevisia sui generis*, or peculiar beer. Other ingredients, which have been too often used, are proscribed by law, under very heavy penalties. It is curious to read in the treatise by Ellis of Gaddesden, the recipe for brewing porter. He tells us, the brewers in his time, commonly drew a barrel and a firkin, or a hogshead of porter from a quarter of brown malt; which porter they sold for twenty three shillings per barrel. From my own personal knowledge, a London brewer nearly half a century since, drew from a quarter of the best Herts white malt, only two barrels of fine ale, which he sold to publicans, at forty shillings, and to private houses, at two guineas per barrel. It was perhaps a singular instance, he used no adulteration

whatever. The immense lengths which have been drawn since, both in the porter and pale beer brewing, are an abundant proof of the virtue of taxation, in improving the art, by exciting the chemical skill of the brewer. A late observation of Mr. Woodhouse, in Parliament, is the best commentary on this: the honourable gentleman observed, that notwithstanding the vast increase of population, the consumption of malt has not increased, during upwards of the last thirty years. Mr. Maberly's motion for changing the duties, merits the most serious attention from every Englishman who values his own, or the interests of his country.

Having thus cleared the way, I proceed, addressing myself particularly to those, who already do, or seriously purpose to brew their own beer; assuring them of the vastly superior salubrity of the pure extract of malt and hops, over the most luscious, stimulating, and palatable compound, however scientifically brewed: with the farther assurance, grounded on all experience, of the nutritious and sanative quality of the pure home-brewed drink, and its real medicinal efficacy in weak cases. Its superior cheapness, during our present state of taxation, needs merely the recital in-

stead of an argument—beer brewed at home will cost the consumer little more, perhaps not so much, as half the price of that which is purchased, and yet prove superior to it, in good and substantial quality. Of MALT. This precious article has not, I apprehend, been made, of late years, from any other grain than barley. In former, and comparatively untaxed days, malt was currently made from wheat, and oats likewise. The only instance of this kind within my knowledge, was of a Mr. Dobson, a malster at Ipswich, Suffolk, in 1767, who made a considerable quantity of wheat malt, wheat being then at about 28s. per quarter. Wheat malt produces a strong-bodied, fine, and high-flavoured liquor; oats, a light, mild, and pleasant beverage. I have heard much commendations of oat ale, as a summer drink, but have never tasted it. The quality of malt is not to be determined by the weight, since the heaviest may, in reality, be the worst, as imperfectly made; tough, hard or steely, and still partaking of the nature of barley. The kernels of the best malt are thin skinned, plump, and when bitten or bruised, yield throughout, a soft, mellow, and sweet-scented flour. A kernel of well-made malt, rubbed till broken, against a dry board, will leave a

314 *Proofs of Goodness—Different Kinds.*

white mark like that made with chalk. The necessity will be easily apprehended, of examining the bulk, as well as the sample of malt; and the private brewer, who can make it convenient to accommodate himself with a mill, to grind his own malt, will thereby ease himself of a number of suspicions, which, right or wrong, have gone abroad, respecting fraudulent mixtures. The goodness of a sample of malt is ascertained by biting the kernels, or immersing them (entire uncracked ones) in water, in which they ought to swim, until saturated with the liquid. The species are four—white, pale, amber, and brown. Perhaps white malts are not so much in use as formerly, when a soft, balsamic, almost colourless ale was in more general request. The colour and qualities of malt depend on the degree of heat and length of time allowed upon the kiln. The pale malts, in course, are those allowed the longest time, the brown or high dried are made with more dispatch, and the amber form a medium between the two extremes. The slack or gradually-dried malt retains most of the substantial quality of the corn, makes the most nutritious beer, and that which may be preserved sound to the longest period. A greater quantity of beer also in proportion, may be extracted from it,

and it commands the highest price. Brown malt is supposed to make up in spirit, what it loses in substance, and with respect to the private brewery, is used by those who prefer that colour, and spirit, or the flavour which high-dried malt imparts. Pale and amber malts are used indifferently by private persons. Hertfordshire has been immemorially, and still continues, celebrated for the finest malt, and there is, at present, more malt made at Ware than at any former period. There is no doubt, I believe, of the superior quality, and also cheapness, of wheat malt, at a certain comparative rate, with the malt of barley.

The Hop, formerly held injurious to health, has long been proved an indispensable ingredient for the preservation of beer, and equally conducive to its salubrity. The qualities of the hop, that is to say, of that part of the plant which is used, are opening, diuretic, and discutient, and held by the old physicians to be effective in removing obstructions in the liver, kidneys, and lower bowels. The ancient notion has, indeed, been fully and practically disproved, that the hop in beer, renders it productive of *nephritic* complaints (gravel and stone). In all probability, such effect ought rather to be attribu-

ted to the *hardness* or impurity of the water used in brewing; since, with all due respect for modern medical science, the incontestable fact remains, that in those districts where beer, from necessity, is generally brewed with well, or hard water, the inhabitants are most subject to the above diseases. Formerly, in dear seasons, many substitutes have been used for the hop, or in addition to it, wormwood, sweet flog (*calamus aromaticus*), horehound, broom, and various bitter herbs. The hop, or husk of the plant, must be pure and unmixed with any other of its parts. Its moist, adhesive feel and aromatic scent, are well known. It requires practical skill to judge of the age, colour, and condition of the hop. The brown colour is not always an indication of either age or bad condition; it is the natural colour of some, as the pale green is of others; for example, of the celebrated Farnham hop. The colour and qualities vary with soil and situation. Nevertheless a brown colour, with a dry and harsh feel, and hardness of the seed, indicate either age, or the deteriorating effects of a bad season. Old hops will doubtless preserve beer; and in fact, good-conditioned old ones are to be preferred to new which are bad; but, generally, new hops, or those of an immediately preceding season, are far the most va-

luable to a consumer, age necessarily despoiling the hop of great part of those volatile, aromatic, and peculiar qualities for which it is used, and perhaps the whole of that material part, its *farina*. In fact, age works a considerable change in the properties of this article. The soil being proper, the cultivation of the hop, to the extent of family consumption, may answer the purpose of a country resident devoted to rural pursuits.

The WATER best adapted to the purpose of brewing, is the *soft*, or that which will most freely and easily lather with soap; it will not only render the most pleasant, wholesome, and best-keeping beer, but also a considerably greater quantity from an equal measure of malt. It must be understood, nevertheless, that the water be pure, or as free as possible from injurious impregnations. Thus rain, river, or pond water may be soft intrinsically, yet contain various impure mixtures; the rain from the building over which it descends, the pond from mud, and the slime of fish, perhaps often disturbed by the feet of cattle, and the river water, from heavy rains, floods, or other causes. The quality of the water generally depends on the nature of the soil, whence well and spring water, notwithstanding their common character of hardness, may be soft and

318 *Seasons—Beers of the Present Time.*

well adapted to the present purposes, on a chalky soil. It results that, they who brew, cannot always command the quality of their water, but only the necessary precautions in that respect; and that pre-supposing a due degree of skill, those districts, in which the softest and best water is found, will always produce the best beer. The soundness and goodness of the beer, will much depend on the season and weather in which it is brewed, and the coolness, dryness, and aptitude of the place in which it is kept. Spring and Autumn, September, October, and March, are the well-known months for brewing; but drinkable, though not keeping beer, may be made throughout all seasons, according to the necessity of the case, both of the common and the private brewers; by the latter, in the smallest quantities which his means and situation may require.

The beers of the present time, for fashion directs and regulates every thing, are PORTER, BROWN STOUT, and beer or ale, varying in colour, from the almost colourless, to the high amber. The porter, as has been already observed, is an acknowledged compound, or it would not answer to its name; thence, granting the adscititious ingredients to be not absolutely noxious, no *stigma* can attach to the

brewer. The pale beer brewer cannot boast of such advantage, nor of acting *bona fide*, whilst boasting that his commodity is the genuine product of malt and hops. I speak generally, craving pardon of the exceptions, wherever they may be, since it has so seldom been my fortune, in a great number of years, to taste unadulterated purchased ale, whether brewed in the Metropolis, or in the brewing districts of the Country. In these ales, at present the chief articles of adulteration, which my well-practised palate can discover, are seeds, sugar, and salt, perhaps bay salt. *Coculus Indicus*, (Indian berry,) a most intoxicating and deleterious drug, the flavour of which I well know, was formerly much in use; and if that be not the case at present, it is difficult to conceive why such large quantities of that drug should be annually imported, since its use in medicine is almost unknown. The brewers, however, find a sufficient apology in the pressure of taxation, and the vitiated taste of the public.

To come to the operative, and concluding part of the subject; the first step is, obviously, to provide the requisite UTENSILS,—a COPPER, fixed or moveable, of the content or size adapted to the quantity to be brewed, to which a cock is a great convenience. A

MASH-TUB, with spigot, faucit, and grating or partial false bottom. COOLERS, a GALLON measure, a HAIR SIEVE of proper size, HAND BOWLS, a PIGGIN, or bowl with an upright handel, PAILS, a FUNNEL, MASHING-STICK, CASKS; and to complete the list, a THERMOMETER, for those who desire to be scientifically accurate, in taking the heat of their liquor. With respect to a measure, the piggin may be made to contain exactly a gallon, or any desired quantity. The present prices of these will be hereafter given, but from the reduced price of timber, brewing utensils, perhaps, do not cost so much, as in former days. It is the interest of those housekeepers, who brew constantly, to purchase utensils of the best and most solid materials, not only on the consideration that they are bargaining for that which will serve them through life, but because the smoothness and hardness of the wood, contributes to the purity of their beer; as soft and porous wood imbibes all kinds of impurities, and after much use can scarcely be made clean. As to those to whom it is an object to lay out as little money as possible, in the purchase of these articles, and those who brew very small quantities, they may suit themselves at a very small expense, more especially in the Metropolis. Used wine casks

are extremely proper, and may be cut down and adapted to every purpose of brewing. The oar or stick to stir up the mash, may be either purchased at the coopers, or made at home, being merely a long flat staff, having three cross sticks, one above the other, at the lower ends.

Beer, or the wine of malted grain, is made by fomenting a solution and decoction of the saccharine matter, or sugar of malt, and impregnating it with the essential oil and bitter quality of the hop, in order to restrict the beer to the requisite vinous fermentation, and prevent its advance to the acetous or acid. That the saccharine matter of the malt may be extracted clear of the farinaceous, the temperature or heat of the water must not be too high, or even at a scalding heat; otherwise a due fermentation will be prevented, and the beer rendered thick and unwholesome. Dense, mucilaginous, and muddy beers, from being unskilfully brewed, and imperfectly fermented, sit heavily on the stomach, being indigestible by weak stomachs, and thence inducing the acid fermentation and its consequences. On this account, the beer of common brewers, as being more carefully and thoroughly fermented, than the ordinary home-

brewed, has generally the advantage with respect to lightness and facility of digestion. These few remarks, on the important subject of fermentation, are intended as prefatory to an account of the following novel, or revived plan of brewing, in which, indeed, time and labour may be saved, but I apprehend not advantageously; the experiment, however, may be easily made.

It is recommended to remove the beer, hops and all, immediately from the copper, and, as I understand, *hot* as it *may be*, to the casks, which are left open to produce the spontaneous fermentation, no yeast being used. This, it is said, will begin in four or five days, when the beer shall have become quite cold; the hops will then rise and work out of the cask. It is further observed that, by this method, the beer will be improved in strength, and the flavour of the hop rendered finer in consequence of the gradual evaporation of the steam. But the obvious risk is, of an imperfect beer from a defective fermentation; and such is the opinion of the brewer of a great London house, whom I have consulted. Another late plan, the idea of which was conceived many years since, and which appears of more rational, and probable use, is confining the gas or steam of the beer, whilst in the work-

ing tun, thereby preventing the evaporation of too great a portion of the spirit and virtue of the malt and hops. For this purpose, an apparatus has been lately invented, and is on trial, at one or two of the great brew-houses. No doubt but the same may be had on a small scale, for private use. To prevent evaporation as much as possible, seems at present a prevailing idea. Further, a compendious mode of brewing, has lately been advertised, with a machine or moveable iron boiler, which may be placed in a chimney or any convenient situation. This is indeed an old house-wife's practice reduced to a system, and furnished with apparatus.

The utensils, malt and hops, being provided, and the brew-house, or place for brewing, being made ready for their reception, the next object, and one of prime consequence, is to have their utensils in the cleanest possible state, the casks more particularly; and they must also be strictly attended to ever afterwards: for the least taint in the casks, or impurity, called *foxing*, in the other utensils, will be communicated to the beer, and render it disagreeable to the palate and stomach, or even totally useless. New casks will require some time for cleansing and seasoning, and, perhaps, dependent on the nature of the wood,

some will always communicate to the beer a slight taste of wood, on their first using. If the malt be new, after grinding, it should be exposed to the air on a dry floor, two days previously to its being used; if old, half the time may suffice. Brown malt requires a longer, perhaps double the time. Malt should be only crushed or broken, not reduced to flour by the mill, which renders the beer turbid.

To speak in this place particularly of the MASH-TUB—it is usually, and indeed most conveniently, made with a spigot externally, near the bottom, to run off the worts into the tubs; or, in some parts of the country they make a hole in the centre of the bottom, thrusting through it a staff, fitting the hole, from which to let out the worts, the staff being of sufficient length above the tub, in order for being laid hold on and managed. The thing, however, being troublesome, is now very seldom used. The wooden grating has superseded the old basket, to keep back the grains and refuse, and to run the worts off fine. The intire false bottom is consequently disused. The COPPER being fitted, and every necessary preparation made, over night, let the brewer commence his operations early in the morning, that his worts may be cooled in good time, and if possible set to work in the afternoon.

The fermentation may continue two days, according to the state of the weather. In a family, where a considerable quantity of beer is required, and the utensils may not be of sufficient content to brew the whole at once, it is best to take the advantage of good weather, and make immediately successive brewings. Always be careful to boil *liquor* enough, and it is perhaps the best rule to boil double the quantity of the beer intended to be brewed. It is to be observed, that *liquor* used in the brew-house, is the proper customary name for water; and that by ancient usage, the mention of the word water, must be accompanied by the forfeiture of a *tester*.

THE PROCESS. In middling families, where they have room, and generally employ a brewer, five bushels of malt is a usual quantity. We will however accommodate our rules to half that quantity, or two bushels and a half, from which we propose to draw $22\frac{1}{2}$ gallons of good ale, and $13\frac{1}{2}$ gallons of small beer. The gauge of the copper should be 18 gallons, with which, indeed, with contrivance, three bushels may be brewed. The mash tub placed conveniently near the copper, in proportion, should hold 40 gallons, the grating before the spigot hole of which should be fixed securely, least it be moved in stirring the

mash. Two or three coolers are necessary, but three most convenient for expedition; their shallow form is well known, and they should hold from 12 to 25 gallons each. The mash tub must be placed on its stand to admit a cooler under the spigot.

The copper having been filled with *liquor*, and boiling, (all scum and impurity removed from its surface) put the contents, 18 gallons, into the mash tub, and cover it close with sacks or any other convenient covering; fill the copper again immediately, least the bottom should burn, keeping a strict account of the quantity of liquor (water) used, as on this point depends the accuracy as to the quantity of the beer to be brewed, and it must be noted, the absorption by the grains, and the evaporation by boiling and fermenting of the worts and other wastes, will amount, in the average, to about three out of every eight gallons, or generally to a quantity between one third and one half. This, and the proper heat of the liquor for mashing, are material points. The old, indeed the now common method of determining the degree of temperature, or heat, is by the rule of looking-glass or finger, thus: the boiling water in the mash tub, having stood a sufficient time to cool, and the steam having evaporated, the face will be seen in it, as in a mirror, it is

then at the proper degree of heat for the reception of the malt ; or, when the operator can just endure his finger in it, and withdraw the finger without being scalded. It is practice only which can assure accuracy in these rules, under which I have drank as good beer as ever was brewed ; but the use of the THERMOMETER will, no doubt, be more certain, which instrument is to be managed as follows—tie a line to it at the top, and let it down into the liquid the temperature of which you desire to measure, it must remain a minute or two, then raise the stem above the liquid, to observe the degrees at which the mercury stands in the tube, without drawing the bulb itself out of the liquid into the air, which would cool the mercury, and give a lower than the temperature required. For the first mashing 170 degrees is the usual rule. Should the heat be greater than that, or boiling, the malt, as it is phrased, would be *set*, and made into a paste ; on the other hand, if a lower than the proper heat be used, the substance of the malt would be but partially dissolved and extracted ; on the whole, the liquor should be taken as high as possible, without scalding, and the worts should be boiled briskly.

In order to ascertain readily, the quantity of water in the mash tub, the following me-

thod is in use. Having measured the quantity of one brewing, make a notch in the mashing stick, or a mark within side the tub, of the height the water stands at, in each mashing, and the quantity being that which you require, it will be necessary at a future mashing of the same quantity, merely to run on as much water as will reach the mark. The following rule for the same purpose, I have learned lately; “take a small lath of wood for each vessel (mash tub or cooler) and placing the vessel on an even surface, pour in two gallons of water; when this has settled, insert the lath, and mark with a notch, the point to which the water rises. Pour on two gallons more, and again notch the stick, so proceeding till the tub or cooler be full. Repeating this on each vessel, and marking on its proper stick, the vessel to which it belongs, the quantity in each vessel may be easily ascertained by dipping in the stick.”

The liquor in the mash tub having cooled to the proper degree, or been reduced, if necessary, by the addition of cold, pour the malt upon it gradually, and let it be stirred briskly, during eight or ten minutes, to prevent its balling, or sinking in lumps, which it is said will have some influence in causing the beer to turn sour. Cover up closely, and leave

the mash tub undisturbed two, or two hours and a half, (standing too long on the grains might sour the worts) then draw off from the spigot, into the sweet wort tub or cooler, having previously racked off and returned several gallons of the wort until it run fine; afterwards draw the whole off clear of the grains. About nine or ten gallons will run off, allowing, as has been stated, for the absorption of the malt, which will be from three to five gallons of water per bushel. When the copper is too small, cold water will at once reduce the temperature and increase the quantity to the required amount.

THE SECOND MASH. The mash tub being clear, the spigot fast, and the second copper of water boiling, reduce its temperature to 160 degrees (by thermometer or common rule as before) or ten degrees lower than for the first mash, and pour into the mash tub 16 gallons, stirring as before. The grains cannot absorb so much as at first. Cover, and leave an hour and a half, then draw off. As soon as the wort runs low, it is usual to pour three or four gallons of warm water upon the bottom, being probably about as much as will be wanted, some brewers using cold water. Run the bottom dry. About the quantity of worts required will then be run off.

BOILING THE WORTS. During the running off of the second mash is the time to put the first wort into the copper. Add the hops after the rate of 1lb. per bushel of malt for keeping beer, or about three quarters of a pound, (or sometimes less) per bushel, the drink being for immediate spending. Separate the hops minutely, with the fingers, and stir them up sufficiently in the copper. Some persons are curious enough to make a previous infusion of the hops for an hour or two, in boiling water, pouring the infusion into the first wort, and leaving the residue to be boiled in the second. Others boil the hops in a bag, a bag of fresh hops to each ale wort, the used bags serving for the small beer. By this they think to avoid the acrid flavour and quality of the hop, preserving only the pure *aroma*. On that ground, I have lately boiled the hops but half an hour in the ale wort. It is customary to boil the worts an hour, or until they *break*, as the phrase is, which is determined by a basin full taken out of the copper and cooled, when if boiled sufficiently, the wort will break, or appear clear, with separated particles or atoms, floating on the surface. Some are of the opinion, they profit by boiling their beer much longer, in which I do not agree. Lade from the copper into a cooler, over

which the sieve is placed, returning to the copper, the hops from the sieve, replenish the copper with the second wort, and boil and strain into a cooler as before. Pigs will eat the boiled refuse hops with the grains. Having copper and tun room, some prefer mashing the ale wort at once. According to an old rule, a brewing employs sixteen hours of time, reckoning to the period of the worts being safe in the coolers, awaiting fermentation.

WORKING THE BEER. As it is an object to cool the worts expeditiously, the more coolers can be put in requisition the better. When reduced to blood warmth, the worts are fit for the working tun, the office of which, if necessary, may be well performed by the mash tub, previously well cleaned. With those who use the thermometer, the proper temperature for working is 65 degrees. In very cold weather, wrap cloths around the mash tub. Stir in the yeast, the proper quantity of which is, after the rate of six or eight table spoonsful to thirty gallons of wort, in the brewing season. In summer weather, little more than half the quantity may suffice. The beer will begin to ferment sooner or later, as the weather may be, and the fermentation may be completed in twenty-four hours, or it may require nearly double that time. In cold weather, when the

332 *Beating in Yeast—Filling up—Cleansing.*

head rises slow and thin, it is usual to stir up the beer once or twice; but the practice of beating in the yeast and impregnating the drink with its particles, does not tend to rendering it wholesome, or to its settling easy on the stomach. The beer being cold at the end of twenty four hours, skim off the yeast, for use, or, should the beer continue to ferment, skim again before cleansing. The fermentation being strong, the head of yeast may be removed in twelve or fourteen hours. An old and practical writer says, “if beer be not sufficiently worked, it cannot clear itself; if too much it gets weak and soon sours. The factitious yeasts have not hitherto succeeded, either with the brewers or bakers.

The next process, CLEANSING, or putting the beer, now nearly complete, into the casks with buckets or pails—the casks must be supposed placed on the *stillings* or stands with legs, which are troughs made to catch the beer working over; in general, any sufficiently capacious tub, placed beneath the cask-stand, answers the purpose. The casks must be placed *tilting*, or inclining to one side, that the yeast and beer working over, may have a single channel. From this overflow, settled and clear from the yeast, the cask must be attentively filled up, two or three times a day; but

it is generally necessary to have a reserve of one or two gallons, as a supply for the waste of fermentation. In three or four days, the weather being cool, the working will be over. Very particular brewers have a reserve of worts with which to fill up, not chusing to make use of the impure yeasty overflow. Level the cask, fill up well, within an inch of the bung-hole; if the drink be for keeping, add a few fresh hops; hammer down the bung, in a piece of coarse cloth, with a piece of bladder between bung and cloth, covering it, if thought necessary, with a sand bag. The vent peg should be left out a few days, until all be quiet, and then driven down. This ale may be drank in six weeks, particularly if brewed in spring; will be excellent at Michaelmas, and in perfection in the following spring. **DRY CELLARING**, and not too warm, is the object, whether for wine or beer.

The above directions, it has been seen, are for brewing ale only, and that of sufficient strength for any ale, even if to be kept several years, in cask or bottled; but, as I have before hinted, old ales and beers lose much of their salubrious properties by age, acquiring others of a different character, as the deep drinkers of such, soon acquire sufficient experience. Three so t of beer are ometimes

made under the same process, namely, best ale from the first worts, table ale from the second, and common small beer afterwards; but the usual and preferable mode is to make ale and small beer; and when the latter is required to be better than ordinary, a small quantity of fresh malt is *capped* on for that purpose.

SMALL BEER after the ale. The last ale wort having run off, and a copper of boiling water being ready, pour into the mash-tub fifteen gallons of water, reduced to about 190 degrees of heat, that is to say, at a considerably greater degree of heat than that used for the ale, but not boiling. (Cold water is also used.) It is to be observed, that the goods (grains) being now saturated, will no longer absorb. This mash is to be well stirred, covered as before, and to be left for about *one* hour. The copper being cleared of the last ale wort, will be ready to receive the small beer, together with the used hops, to which may be added, if thought necessary, a small quantity of fresh hops, and the wort boiled an hour. Some boil their small beer worts but half an hour. It must be noted, that small beer after ale, will not break on the surface like ale. This time must be spent in cleaning the mash-tub for the reception of the last wort, which must be strained into it, and there left to cool

for working, supposing no other cooler at hand. It will require considerably more yeast than the ale wort. I have some reason to remark that, a careless servant may require a caution to put out the fire, before he begin to empty the copper. Small beer wort may be moderately warm, when the yeast is put to it, and also when cleansed it ought not to be cold. If it work freely, it may be cleansed the day after : it may, however, be proper to remark, that small beer, after strong, can never be equally wholesome, with small beer brewed by itself, or the entire small. We have thus made from two and a half bushels of malt, a half barrel and a *pin*, and a firkin and a *pin*, of, it may be expected, good ale, and good small beer.

INTIRE GUILE, small beer, or small beer brewed by itself;—four bushels of fine and good pale malt, will make two barrels, or 72 gallons, in two mashings or worts, to be afterwards, when cooled, put together. The liquors to be taken at the degrees of heat stated above. Two pounds of fine hops will be sufficient, or less. For the fermentation, use a quart, to three pints, of yeast. In twenty or twenty-four hours, the weather being cool, the beer will have worked sufficiently, and the yeast skimmed from it will be very good for use. To be casked, filled up, and treated with as much

care as ale. Many years ago, I was in the habit of brewing this keeping small beer, from the finest Herts. white malts, and the best hops. It was of the colour of pale Sherry, and in the heat of summer, was more agreeable than strong beer, indeed a most pleasant beverage. I frequently bottled it with success. At that time, Sir Edward Walpole, who had the strange habit of drinking red Port and small beer mixed, equal parts, and could procure no good small beer, in London, importuned me much to procure him a supply of the fine keeping small.

VARIATIONS in practice, and Rules. Instead of putting the boiling water, at first, into the mash-tun, and leaving it covered up, by way of seasoning the tun, as has been directed, some, for expedition sake, and the saving of fuel, do not boil, but only heat the water to the requisite degree of temperature, and mash with it immediately. I know of no objection to this practice. They say boiling extracts the water. Others shoot only half the malt, at first, into the mash-tun, stirring it up, and afterwards adding the remainder with the liquor; but so small a quantity as two or three bushels, poured in at once *leisurely*, may be well separated and prevented from *balling*, the operations of pouring and stirring pro-

ceeding together. Some fancy that a reserve of a few handfuls of malt, sprinkled over the surface, will help to retain the steam. They next make the sign of the cross upon it, by which they do not always prevent evil spirits from guzzling their sweet wort. In tending the COPPER, care should be taken, by stirring down the hops as they rise to the surface, that it do not boil over; when boiling proceeds too rapidly, it will be necessary to set open awhile, the copper-grate door, and damp the heat. After boiling has proceeded a few minutes, the hops will sink. In emptying the copper of worts, the necessity will suggest itself, of putting a convenience across the cooler or tub, two sticks for instance, in order to hold the sieve, or straining basket. Those family brewers who chuse to be hypercorrect, and curious, may provide a SACCHAROMETER, the purchase of which, in a tin case, is six shillings. With this they may find the specific gravity, or strength of the wort, previously to fermentation. Two bushels of good malt will yield full eighteen pounds of *saccharum*, the matter of sugar. The first wort, from malt of that quantity and quality, per barrel of thirty six gallons, will weigh about thirty pounds. The second, fifteen,

and the third, or small, about nine pounds, heavier than water. The old brewers judged of their worts, by weighing a pint, or a quart, the goodness being supposed to consist in the gravity; the most curious of them also, using a close cover to every process, in order to prevent the waste of evaporation.

FERMENTATION. My brewer, in this part of the process, took no further pains, than to distribute the yeast over, and stir it into the surface. Others are particular to put the yeast into a hand bowl, which they set afloat on the beer. In three or four hours, the yeast will work over the bowl, into the beer, when the bowl is to be turned bottom upwards, and a fermentation communicated to the whole mass, or the bowl of yeast and wort mixed is placed at the bottom of the empty tub, and the worts laded upon it. Some say the first, or common method, merely spreading the yeast on the surface, has the speediest effect. Too rapid and speedy fermentation, however, is not desirable, least it exhaust the spirit of the beer, by excess; indeed, slow working, provided it, in the end, be thorough and effective, and not carried to the other extreme, need not be regretted; but in filling up the beer, when in the casks, the remaining yeast

should be well worked out, yeast being a narcotic and unwholesome matter. In cold weather, when it is difficult to raise a ferment, it is an old practice, to fill a gallon, or two gallon stone bottle with boiling water, well corked and put into the beer, in order to infuse and spread a heat ; also, to quicken the fermentation, salt, flour, and the whites of eggs are used ; but I apprehend, when good yeast fails, those are not likely to succeed, and that time is the real remedy. As to the stock of beer brewed, according to the old maxim, better to have rather too much, than too little, as the casks must be filled ; thence, if there be not ale enough, they must be filled up with small beer, or perhaps, with a decoction of malt and hops, put in blood warm, or cold. In case of a surplus, the two and half gallon *cags*, or stone bottles, are the proper vessels.

LONDON PORTER. I have brewed beers, and ales, under various other names, but never porter. Now, as this beer is so universal a favourite, it may as well be brewed in a private, as in a public brewhouse ; and as many cannot dispense with it, at their meals, they may perhaps be induced to try whether they cannot, as well as a much cheaper, brew

an equally genuine and good porter, at home. I have already made the necessary distinction between the absolutely noxious ingredients, used in brewing porter, the use of which cannot be denied, since they have, in a multitude of instances, been detected and fined, and those which are necessary, at the same time, not actually noxious. They are indeed chiefly diuretic, and some of them nourishing and promotive of accretion, as the *black malts* (treacle), and liquorice root. Nevertheless, porter can never be equally nourishing and salubrious with beer, which is the genuine and simple product of malt and hops. But good ale or beer, is too heavy to dilute full flesh meals, and perhaps inferior, in that respect, to porter, for which good small beer or water is the best diluent ; strong ale being in its proper place, consorting afterwards, with the dessert, or accompanying a light supper, or the noon luncheon, after fatigue. It is moreover due, from an impartial writer, to note, that much of the vulgar ribaldry, against the porter brewers particularly, may well and ought to be spared. So far as I know of the porter to be had at present, in the Metropolis, it is a brisk, full-bodied, and pleasant beer, which will bottle well, referring particularly

to that of Messrs. Barclay and Co.—Whitbread,—and Reid. With the profits of these great and opulent traders, I have nought to do, but to remark my little doubt, that the patriotic grumblers thereat, would not, in their own case, be too modest to accept them from a bountiful public.

Having acknowledged my unacquaintedness with the peculiar method of brewing porter, I cannot, I believe, do better than take as a text book, a small and useful tract, on the subject, written nearly twenty years since, by Mr. Samuel Child, a brewer. He assures us, on his own experience, that as good porter may be brewed from a single peck of malt, as from a brewing on the large scale ; and that which appears to me yet more strange, another writer avers as much with respect to proportional equality of quantity, as of quality. For its singularity, I give the quotation—“ I have observed, that malt brewed in these small quantities, makes a much stronger liquor in proportion ; that is, eight pecks of malt, brewed separately, will produce forty gallons of excellent beer, much better than eight pecks brewed together. What the cause of this advantage is, I have not exactly ascertained, but am fully satisfied of the fact.”

Among the peculiar portering ingredients, however, enumerated by Mr. Child, I am sorry to find that baneful drug, *coculus Indicus*, which he has even given in his *recipe* for ale. It is well he omitted *opium*, which has often poisoned both porter and ale. The following is Mr. Child's bill of fare for the production of genuine porter, exclusive of the Indian berry; and the private brewer may assure himself that, should the following ingredients fail to make him fat, at any rate, they will not poison him. The expenses are calculated on the market rate of the present day, Easter Monday, 1824.

	s.	d.
One peck of ground malt.....	2	4
Liquorice root, bruised, $\frac{1}{4}$ lb.	0	2
Spanish juice, or liquorice	0	0 $\frac{1}{2}$
Essentia bina	0	2
Colouring.....	0	2
Treacle.....	0	1 $\frac{1}{2}$
Hops $\frac{1}{4}$ lb.....	0	8
Capsicum and ginger	0	2
Coals and Wood	0	6
	4	4

The above charge, our guide warrants, will produce six gallons of *good* porter, for

which the publican now charges ten shillings, himself paying to the brewer, forty-five shillings per barrel of thirty-six gallons. It must be observed, in giving the common brewer's recipe, he quotes additionally,—salt of tartar, heading, ginger, slacked lime, *coccus Indicus*, linseed, cinnamon (meaning doubtless cassia). We trust, no brewer of repute, now uses the *coccus Indicus*. The *essentia*, consists of moist sugar, eight pounds to one quarter of malt, boiled in an iron pot to a thick syrup. Colouring, is also made of eight pounds of moist sugar, boiled to a medium, between sweet and bitter. These ingredients, the ginger excepted, which is put into the beer after it has worked, are boiled in the first wort, forming the basis of the peculiar porter, quality and flavour. The **HEADING** is a mixture of equal parts, alum and copperas, ground to a fine powder, which gives to the porter its peculiarly fine frothy head. I have already observed on the innoxious qualities of the ingredients used in the private brewing of porter; these are easily to be obtained of the grocer and druggist of any county town, and the manufacturing labourer, accustomed to the flavour and qualities of porter, if economically inclined,

may supply himself and family, his rib, pulling with him, standing the fag. The drink will be fit for use, after seven days, but will have improved after twenty-one. Mr. Child says, the brewers in his day, drew the length of FIVE barrels of porter, from a quarter of malt, which great length he seems to have exceeded in his private recipe. A private brewer may be more liberal, at his own option.

Porter, it seems, must be brought forward, or worked quicker, than ale, and when in the cask, be watched and air given, that they do not burst. Child says, they use a mixture of pale and amber MALT with the brown; and he inclines to prefer the use of amber entirely. A man's experimental choice will best determine this. On account of the variety of ingredients, and particularly of the *essentia*, this beer requires FININGS, which are composed of isinglass, dissolved in perfectly fine stale beer, until it become a thin, gluey consistence, like size. One pint of finings, is the usual allowance for a barrel of beer, though occasionally, two or three may be required; or it may happen, in favourable weather particularly, that little, or even none, be needed. In general, stale beer not being at hand, a

quantity is drawn from the cask itself, to make the finings, but it may not be so effective.

In the manufacture of ALE and small beer, Mr. Child must be no longer my oracle. He unreservedly gives into the habitual adulterations of beer, with sweets, seeds, (1lb. coriander is supposed equal to a bushel of malt,) and drugs, which necessarily produce a spurious, and vastly inferior drink, compared with the genuine product of malt and hops. I will have no counterfeits in my cellar, nor allow any addition to malt, hops, and liquor, excepting a handful or two of salt, which seasons all things; of this, the old rule is a handful to each, and every boiling of worts. Beer, in truth, may be made from sugar, and small beer from treacle; an excellent beverage no doubt, for a wasting jockey, or a rare article to give a poor labourer a ground sweat. I have already alluded to the theories of our chemists on the potatoe. They infer an equality of power and strength in all essences: as another example, an equality between the *saccharum* of sugar, and of malt, assuring you, that in beer making, a certain number of lbs. of sugar are equal to a bushel of malt, (Child fixes the quantity of sugar at 6lbs.)

346 *False Economy—Country Labourers.*

They reckon without their host. The beer of sugar, is an unsubstantial, as well as mawkish, sickening beverage, compared with the beer of malt. The admixture of sugar or treacle, deteriorates the quality of beer, however in proportion it may be made to increase the quantity. The *gluten* of potatoes is infinitely inferior, in substantial quality, to the gluten of wheat, as is fully proved in the manufacture of starch and bread. There is, moreover, an old adage, that will not always hold water. It has been said—bad small beer is better than none. I remember a poor country smith, in the starvation period of the late revolutionary war, who, economically, brewed bad small beer, and nearly scoured out the guts of himself and his hammer-man. I saw them in the proper guise of skeletons. They cried, give us a little good beer, and the rest water. Farmers have often weakened their harvest labourers, by filling them with miserable small beer; whilst the latter have taken every opportunity of drenching the land with it.

The labourer, whose wife is not fully employed, and who has a cool place for his beer, may have successive brewings of a peck of malt, the year through, of strong and small beer, and the recommendation of such eco-

nomical practice, will be kind and patriotic in my country, particularly my lady, readers. A convenience to boil four or five gallons of water, a tub or two, and two or three small casks, will make the shift. In the country, skill will not be wanting.

UTENSILS, the London price of new. COPPER is from seventeen to nineteen pence per lb. A new one, gauge 15 gallons, including iron-work, will cost between 48 and 50s. less in proportion, for a larger gauge. A MASH-TUB, six shillings per bushel, for the number it will work. A TWENTY GALLON cooler, 10 shillings. Piggin 2s 6d. In general, the wooden utensils to brew two bushels, will cost 2l. 5s. ; for three bushels, 3l. ; for five bushels, about 4l. A family for brewing a considerable quantity, generally expends about 10l. in utensils, including the casks. A wine pipe cut down, as has been said, makes a good mash-tub. Price of a half firkin or pin, 4s. 6d. ; a firkin, nine gallons, 6s. ; of a kilderkin, 18 gallons, 14s. ; of a half hhd. 27 gallons, 20s. ; of a barrel, 36 gallons, 23s. Our writers, on brewing, seem to agree in the adoption of one generic term for casks, calling them all *barrels*. *Ana* being *a-la-mode*, I may not neglect the opportunity of treating the reader

348 *Anecdote—Malt-Mill—Vent-Peg—Slugs.*

with one, which comes *a-propos* in this place. Perambulating the metropolis, I observed a large cooperage. It occurred to me, as a good opportunity, to enquire the present prices of brewing utensils, and whether any novelty or improvement had supervened. The master was called, and he appeared with a due degree of attention. I announced my enquiries. On the sudden, wheeling to the right about, and turning his back upon me, Mr. Cooper said, with the expression of *sang froid* and much consequence, “If you *wait* on me, when I am not so much engaged, I’ll tell you all about it.” I, in course, preferred seeking another cooper, and of inferior *calibre*. I should have quoted the price of a steel mill to grind malt, which may be had at Plenty’s, Smithfield, for 4l. 4s. A bushel is ground in seven or eight minutes. There is a new brass vent peg, which screws into the cask, and is thence tight and secure for any length of keeping. It may be had of any London ironmonger. I have heard, but imperfectly, of some new and convenient implement to draw tastings from the bung-hole, instead of spiling and pegging the cask, which sometimes leads to letting out the drink; a curious instance of which occurred to me lately, with a cask of wine. The *slugs*

were observed very busy about the vent peg, as if wine bibbers; and either their or some other suction, drew the peg, and set the wine afloat.

CASKS. The larger the cask, the longer and better will the beer keep; thence, the butt stands first, and should be set upright. Considerable families seldom use casks below the hogshead, for their keeping beer. The wood of new casks will impart its flavour (that of bark and wood) to the beer, during several brewings. Wash first in cold, then in boiling water. Scald with salt and water boiled. Some use lime or brimstone. Or after well washing, keep in them beer grounds, or stale beer. The coopers season the staves, before they are worked into casks, by boiling them in a copper.

To sweeten FOXED, or tainted casks.—The radical method is that of the cooper. Unhead the cask, and put in a chaffing-dish of coals, on which cast pitch or brimstone, the head being put in loose during the fumigation; or use the scrubbing-brush with a strong ley of *hard* wood or pearl ashes; or pour that ley into the bung-hole, boiling hot, let it remain some time; or malt-dust, boiled in water; or bay-salt. The following was formerly reckoned effectual for a musty cask:—fill the cask with

350 *Utensils—Cleansing Beer fine.*

boiling water, not quite to the brim, put in some pieces of unslacked stone-lime, which will immediately cause an effervescence, like the boiling of a copper; but this must not be continued more than half an hour, or the lime may prove as bad as the must. The effervescence over, bung down, but wash out before the liquor be quite cold. All utensils must be WASHED and SCRUBBED with the most rigid carefulness, after brewing, and placed where they will not be warped by the heat of sun or fire. The casks emptied should remain with the bottoms of the beer within them, tight bunged, in a good cellar, or other cool place.

ON CLEANSING beer *fine*.—The old writers on brewing, insist much on the common accidents of thick and turbid beer, from the careless and improvident custom of casking it, *bottoms and all*, instead of lading it off as fine as possible. I had once, in my own case, a very pregnant and decisive example of this. When I took Pamber House, near Basingstoke, in 1790, Mr. Wakeford, who was born there, informed me of a difficulty not to be surmounted, namely, that no beer had been, in their memory, or could be, brewed there, *fine*. We engaged the old bailiff, who had brewed

in the house, probably, during forty years. At first, we were supplied from a common brewhouse, within a few miles, the beer from which, drank at supper-time, afflicted me with the most restless and troubled sleep, and infernal dreams. I could well distinguish in it a *q. s.* both of opium and the Indian berry. Our first brewing at home, produced the pot-luck of the house, thick beer, which old Duckit insisted, was a defect grounded on precedent, thence, in course, admitting of no reform. Like the great *Katterfelto*, of the *Prussian* Death-head hussars, in cases of difficulty, I was apt to call out—"fere is mine wife?"—In short, I persuaded her to inspect personally and carefully, the casking of the beer, which she discovered was performed usually by the old man, in the way above reprobated. With the utmost difficulty, she induced him to change his method, the happy consequence of which was, that thereafter, we had as fine beer as any in the county; which we often proved by placing a decanter of it, side-by-side, with the finest sherry, which it equalled in brightness. Another defect of precedent also, we found there. A fine Morello cherry-tree had, for many years, blossomed luxuriantly, but never borne fruit. How the same

doctress made a radical cure in that case likewise, until the branches required propping, in order to enable them to support the weight of fruit, I have related in another place. In fine, the following, however old, are sound and excellent maxims :—" Let your wort lie some time in the underback, to draw it from the *fæces* there; be equally careful to run it off fine, out of the cooler into the tun, and from the tun into the cask : in all which several places, the wort and drink may be had clear and fine : there will then be no more sediments than are just necessary to assist and feed the beer, and preserve its spirit. But when time and convenience allow of the utmost nicety, recourse may be had to the sieve of *Hippocrates* (a flannel bag in a hoop) for straining off the bottoms."

To FINE thick beer. Brewers' finings (as before) to be obtained at the ale-house, are the most usual remedy. Or Isinglass cut small and boiled, one ounce in three quarts of beer, kept all night to cool, and put into a hhd. perfectly COLD, the beer being well stirred. The beer to be tapped in a week. It is said sometimes to make the drink flat. Or two or three handfuls of scouring sand, or small red gravel, well stirred in. Or, a pint

of wheat boiled in two quarts of water, the liquid being squeezed through a fine linen cloth. One pint of this decoction suffices for 18 gallons of beer, preserving and feeding, as well as fining. The decoction, I think, should be made with beer. Also the fine flour of kiln dried horse-beans, whites of eggs, with shells powdered, and various other articles of a similar nature, are used.

TO RECOVER PRICKED OR ACID beer. The alkaline substances most in use, are salt of wormwood (tartar) and chalk. I must own, I have never succeeded in this case to my satisfaction, either with beer or home-made wines: for having neutralized the acid, that indeed not completely, a considerable sediment has been deposited, which, after a while, and particularly during draught, would re-ascend, and the drink become subacid, with a flavour of the chalk. If any thing of this kind can be effectual, it is probably the salt of tartar joined with an infusion of hops. The drink to remain undisturbed several months, then to be drawn off the lees into a fresh cask. Mr. Walter, a tradesman in my neighbourhood, a particularly curious and skilful private brewer, of many years' experience, informs me that he has tried, without success, most of the

354 *Foul and Ropy Beer—Colouring.*

old methods of recovering sour and turbid beer, and that he prefers taking the opportunity of brewing, when he starts his pricked beer upon the grains in the mash, after the small beer, running it off directly; when it will run clear of the acidity and foulness, which are left behind in the grains. He then puts into it the boiled and used hops, and perhaps a few fresh, casking all together. Mr. Walter keeps his beer in butts set upright. He finds that two bushels of malt absorbs ten gallons of water. For FOUL and VAPID drink—three quarters of a pound of bean flour (as above), with one pound of raisins, stoned and chopped, the whole made into balls with the beer, and put into the cask, which must be bunged, but a vent-hole left, as a fermentation will arise, and, perhaps, continue twenty-four hours. For ROPY beer, two handful of bean flour, with one handful of salt, are recommended as sufficient for a butt. After all, it will be easily conceived, by the reflecting reader, that PREVENTION, compared with the best of these ancient nostrums, is as strong beer to pump-water. Elderberry juice was formerly much used in the country, to heighten the colour, and give a peculiar flavour to old beer.

Instead of believing in the following Re-

ceipt, let the reader reverse the old saying, and go about to prove it. To keep drink from being PRICKED IN THE CASK—Put an iron pad over the bung-hole; over that pad, work a piece of clay, big enough to cover all, and exclude the air. This will preserve the beer sound, during thunder, or under exposure in the vault or cellar, to concussion from carriages above; and more particularly where, from want of a better convenience, beer is placed above ground.

To check FERMENTATION in the *Cask*. We have at this moment a small latter brewing, and the beer has continued to work during several weeks, in the cask. Instances have occurred, of beer brewed in the season, fermenting throughout the summer. The old brewers recommend, in the case, to draw of a quantity, from a quart to a gallon, and replace it with raw wort. I have tried cold beer without effect. They also direct to burn brimstone beneath, or about the cask; or, which perhaps is the best remedy—rack the beer into a fresh cask, previously well steamed with sulphur, from burning rags, or other mode.

FINIS.

Books

ON DOMESTIC ECONOMY, AGRICULTURE, &c.

PUBLISHED BY

SHERWOOD, JONES, AND CO.

1.

JENNINGS'S DOMESTIC CYCLOPÆDIA, being a complete Code of Family Information. Just completed in 13 Parts, (which may be had by one or more at a time,) price 2s. 6d. each, forming 2 large Volumes, Octavo, price 1l. 14s. boards, an Original Work, entitled the **FAMILY CYCLOPÆDIA**, being a Manual of useful and necessary knowledge, alphabetically arranged; comprising all the recent Inventions, Discoveries, and Improvements in Domestic Economy, Agriculture, and Chemistry; the most approved methods of curing Diseases, with the mode of Treatment in cases of Drowning, other Accidents, and Poisons; observations on Diet and Regimen; a comprehensive account of the most striking objects in Natural History, Animate and Inanimate; and a detail of various processes in the Arts and Manufactures: also, a concise View of the Human Mind and the Passions, with their particular application to our Improvement in Education and Morals. By J. JENNINGS. This Original and Valuable Work is printed in double Columns, on good Paper, and contains upwards of *Fifteen Hundred Pages* of Information, immediately connected with the pursuits of Domestic Life. By means of close printing and a large page, it comprehends as much matter as is usually found in *six* Volumes of an ordinary size, and cannot fail, it is presumed, of being considered a most valuable addition to a **FAMILY LIBRARY**.

*** *The Family Cyclopædia*, by JAMES JENNINGS, contains a large mass of information, on subjects connected with the domestic economy of life. In matters of science and art, the author has made his selections from sources of the best authority. The original materials supplied by himself are credible to his observation, good sense, and benevolence. Almost every topic of general interest will be found in this comprehensive and judicious compilation, treated in a clear and familiar manner. As a book of daily reference in the common concerns of life, it will be found to afford important assistance, and its great practical utility will, we have no doubt, ensure it a ready introduction, and a favourable reception, in every intelligent family. In addition to the great heads of domestic economy,

agriculture, and chemistry, this work points out the best modes of curing diseases, and obviating the effects of sudden accidents; and presents also an outline of the mind and passions, with a view to the improvement of morals and education.—*Monthly Magazine*, July, 1821.

2.

A COMPLETE SYSTEM OF PRACTICAL

AGRICULTURE; including all the Modern Improvements and Discoveries, and the Result of all the Attention and Inquiry which have been bestowed on this important Science during the last Fifty Years; the whole combining and explaining, fully and completely, the PRINCIPLES AND PRACTICE OF MODERN HUSBANDRY, in all its Branches and Relations. With an Appendix of the Laws relating to Agriculture, particularly of the Relative Rights of Landlord and Tenant, Forms of Leases, Setting out Tithes, &c. &c. By R. W. DICKSON, M. D. HONORARY MEMBER OF THE BOARD OF AGRICULTURE, &c. &c. In two large Volumes, in Quarto, illustrated with upwards of *One Hundred Engravings*, (Thirty of which are coloured from Nature,) representing improved Implements, the various Grasses, and the principal Breeds of Sheep and Cattle, from Original Drawings. Originally published at six guineas; but the stock having passed into the hands of the present Proprietors, they have reduced its price to four guineas, thus rendering it the cheapest as well as most comprehensive work on the subject extant.

This Work includes every Branch of the important Art to which it relates, particularly the best Methods of Planting Timber of every Description, and the improved Management of Live Stock, with a Description of Implements and Buildings; the Theory of Soils and Manures; the best Methods of Inclosing, Embanking, Road-making, Draining, Fallowing, Irrigating, Paring and Burning; the improved Cultivation of Arable Lands, and of all Kinds of Grain, Artificial Grasses, &c.; presenting the most useful and comprehensive Body of Practical Information ever offered to the Public on the interesting Science of Agriculture; a Science which is so intimately connected with the Welfare and Happiness of the BRITISH EMPIRE.

Reliance is placed on the Support of *Noblemen, Clergymen, Country Gentlemen*, and intelligent *Farmers*, in this Undertaking, which is calculated to remove the Obstacles that have hitherto presented themselves to the Introduction of Agricultural Improvements.

3.

THE FARMER'S COMPANION, being a complete system of Modern Husbandry; including the latest Improvements and Discoveries, in Theory and Practice. Extracted and Abridged from the above Work, by the same Author. In two Volumes, royal 8vo. Second Edition, Price two Guineas, in boards. The leading feature of excellence by which this work is distinguished, is that minuteness of Practical Detail, which renders it singularly adapted to the purposes of Agriculture. The whole scope of its contents has a constant and immediate connexion with the daily pursuits of the Farmer, the Implements of Husbandry he employs, the Modes of Agriculture he adopts, and the system of Pasture and Feeding he pursues. These multifarious topics are all treated with simplicity and clearness; so that the Work presents an ample, but distinct display of every subject connected with the practical objects of a Farm. It is illustrated with upwards of *One Hundred Engravings*, representing improved Implements for Farming, various Breeds of Cattle, Sheep, &c.

4.

AGRICULTURAL REPORTS OF GREAT BRITAIN, drawn up under the immediate Sanction of Parliament, and published by Authority of the Board of Agriculture.

SHERWOOD and Co. beg leave most respectfully to submit to the Notice of the Nobility, Clergy, Gentry, and Farmers of the United Kingdom, the following truly National and most important Work.—It consists of New and Improved Editions of the County Surveys, and unites every Species of Information relative to the *Statistical, Economical, Agricultural, and Commercial* State of each County. Sixty Volumes, uniformly printed in Octavo, and illustrated with Maps and Plates, are already published, viz.

ENGLISH AND WELCH REPORTS.

Bedfordshire, by Mr. Batchelor	... 15	0	Lincoln, by A. Young, Esq. 2d Edition	12	0
Berkshire, by Dr. Mavor	... 18	0	Middlesex, by J. Middleton, Esq. 2d Ed.	15	0
Buckingham, by the Rev. St. John Priest	12	0	Monmouthshire, by Mr. Hassell, of East		
Cambridgeshire, by the Rev. Mr. Gooch	9	0	Wood, Pembrokeshire	... 7	6
Cornwall, by Mr. Worgan	... 12	0	NORTH WALES, by Walter Davies, A.M.	12	0
Cheshire, by H. Holland, Esq.	... 10	6	Norfolk, by A. Young, Esq.	... 12	0
Derbyshire, Vol. I. by Mr. Farey, sen.	... 21	0	—, by Mr. Kent	... 6	0
—, Vol. II. ditto	... 15	0	Northamptonshire, by W. Pitt, Esq.	... 8	0
—, Vol. III. ditto	... 18	0	Northumberland, Cumberland, and West-		
Devonshire, by C. Vancouver, Esq.	... 18	0	moreland, by Messrs. Bailey, Culley,		
Dorsetshire, by Mr. Stevenson	... 12	0	and Pringle	... 9	0
Durham, by Mr. Bailey	... 10	6	Nottinghamshire, by Robert Lowe, Esq.	5	0
Essex, 2 vols. by A. Young, Esq.	... 24	0	Oxfordshire, by A. Young, Esq.	... 12	0
Gloucestershire, by T. Rudge, B. D.	... 9	0	Shropshire, by the Rev. J. Plymley, A. M.	9	0
Hampshire, by C. Vancouver, Esq.	... 16	0	SOUTH WALES, by Walter Davies, A.M.		
Herefordshire, by J. Duncombe, A. M.	... 7	0	2 vols.	... 24	0
Hertfordshire, by A. Young, Esq.	... 8	0	Staffordshire, by Mr. Pitt	... 9	0
Huntingdonshire, by Mr. Parkinson	... 9	0	Suffolk, by A. Young, Esq.	... 10	0
Jersey and Guernsey, by T. Quayle, Esq.	10	6	Surrey, by Mr. Stevenson	... 15	6
Kent, by Mr. Boys	... 8	0	Sussex, by the Rev. A. Young	... 15	0
Leic. and Rutland, by Pitt and Parkinson	15	0	Warwickshire, by Mr. Murray	... 8	0
Lancashire, by Dr. Dickson, revised and			Worcestershire, by Mr. Pitt	... 10	6
prepared for the press by Mr. Stevenson,			Wiltshire, by Mr. Davis	... 9	0
author of the Surrey Report	... 14	0	Yorkshire, (East Riding), by Mr. Strickland	12	0

SCOTCH REPORTS.

Argyleshire, by Dr. J. Smith	... 9	0	Nairn and Moray, by the Rev. Wm. Leslie	14	0
Berwickshire, by Mr. Kerr	... 14	0	Peebles, by the Rev. C. Findlater	... 10	6
Caithness, by Capt. Henderson	... 15	0	Ross and Cromarty, by Sir G.S. Mackenzie	9	0
Clydesdale, by Mr. Naismith	... 7	0	Roxburgh and Selkirk, by the Rev. Dr.		
Dumfries, by Dr. Singer	... 18	0	Douglas	... 9	0
East Lothian, by Mr. Somerville	... 6	0	Sutherland, by Capt. Henderson	... 12	0
Galloway, by the Rev. S. Smith	... 9	0	West Lothian, by Mr. Trotter	... 9	0
Hebrides, by J. Macdonald, A. M.	... 21	0	Report of the Committee of the Board of		
Inverness, by the Rev. Dr. Robertson	... 14	0	Agriculture, concerning the culture and		
Kincardineshire, by Mr. Robertson	... 12	0	use of potatoes	... 7	6

Any of the Reports may be had *separately*; and, it is presumed, every Nobleman, Clergyman, Gentleman, and Farmer, should be in possession of the Survey of his own County, and of the adjoining Counties, as also of any other, which may contain that Species of Information most conducive to his own Local Interests.

* * *Complete Sets* of the Reports are recommended to the various AGRICULTURAL SOCIETIES and BOOK CLUBS, as forming an aggregate of General Information, and point of Reference on all occasions.

5.

THE CODE OF AGRICULTURE; including Observations on GARDENS, ORCHARDS, WOODS, and PLANTATIONS. By the Right Hon. Sir JOHN SINCLAIR, Bart. Third Edition in one Large Volume, 8vo. Price £1 4s. in boards.

This *Third Edition* is considerably improved by a number of Valuable Remarks, communicated to the Author by some of the most intelligent Farmers in England and Scotland.

The Subjects particularly considered, are

1. The Preliminary Points which a Farmer ought to ascertain, before he undertakes to occupy any extent of Land.
2. The Means of Cultivation which are essential to ensure its success.
3. The various Modes of improving Land.
4. The various Modes of occupying Land.
5. The Means of improving a Country.

6.

A SYSTEM of SHEEP GRAZING and MANAGEMENT, as practised in Romney Marsh. By DANIEL PRICE, of Appledore, Kent. In 4to. Illustrated with Plates, price 2l. 2s. in boards.

7.

A PRACTICAL TREATISE on the Parturition of the COW, or the extraction of the Calf, and on the Diseases of Neat Cattle in general; with the most approved Methods of Treatment, and best Forms of Prescription, adapted to Veterinary Practice. By EDWARD SKELLETT, Professor of that part of the Veterinary Art. In one large Volume, Octavo, price 18s. plain, or 1l. 7s. with the Plates accurately coloured. Illustrated with thirteen highly-finished Engravings.

8.

THE GRAZIER'S READY RECKONER, or a useful Guide for Buying and Selling Cattle; being a complete set of Tables, distinctly pointing out the Weight of Black Cattle, Sheep, and Swine, from three to one hundred and thirty Stones, by *measurement*; with Directions, showing the particular parts where the Cattle are to be measured. By GEORGE RENTON, Farmer. A new Edition, corrected. Price 2s. 6d. sewed.

9.

THE HORTICULTURAL REPOSITORY, containing Delineations of the best Varieties of the different Species of

ENGLISH FRUIT; to which are added, the **BLOSSOMS** and **LEAVES**, in those instances in which they are considered necessary:—accompanied with full Descriptions of their various Properties, Time of Ripening, and Directions for Planting them, so as to produce a longer Succession of Fruit; such being pointed out, as are particularly calculated for open Walls, and for Forcing. By G. BROOKSHAW, Author of the "*Pomona Britannica*."

Illustrated by beautiful Coloured Plates, on which the Fruit is represented in its natural size: the whole Work comprehending nearly Two Hundred Specimens of the choicest Species. In two Volumes, royal 8vo. price 6l. 10s. in boards, or may be had in Twenty-six Monthly Parts, by one or more at a time, at the original price of 5s. each.

. This Work is the result of several years' practical observation. Its obvious utility and general interest, will instantly occur to the reader; it being a curious fact, that while an enlarged taste for Botany has been directed, both scientifically and popularly, to every branch of its extensive province, this particular department has been most neglected, the proper selection of Fruit Trees being generally very imperfectly understood; a deficiency which it is the object of the present work to supply.

10.

A TREATISE on the Improved Culture of the **STRAWBERRY, RASPBERRY, GOOSEBERRY, and CURRANT**, in which are pointed out the best Methods of obtaining ample Crops of those Fruits. To which are prefixed, Descriptions of the most esteemed Varieties. Illustrated by four coloured Plates, representing the choicest Specimens of the Fruit, drawn in its natural size. By THOMAS HAYNES. In 8vo. price 10s. in boards.

11.

A PRACTICAL TREATISE on Brewing the various sorts of Malt Liquor; with Examples of each Species, and the mode of using the Thermometer and Saccharometer: the whole forming a complete Guide in Brewing every Description of Ale and Beer. To which are added, General Instructions for making Malt, and Tables of the Net Duties of Excise on Strong and Table Beer, payable by Common Brewers in Town and Country. By ALEXANDER MORRICE, Common Brewer. Sixth Edition; with the Laws, (now first added,) relating to Brewers and Maltsters. By JOHN WILLIAMS, Esq. Price 10s. 6d. boards.

12.

THE FAMILY DYER AND SCOURER, being a complete treatise on the Arts of Dying and Cleaning every article of Dress, Bed and Window Furniture, Silks, Bonnets, Feathers, &c., whether made of Flax, Silk, Cotton, Wool, or Hair: also Carpets, Counterpanes, and Hearth Rugs. Ensuring a saving of Eighty per cent. By WILLIAM TUCKER, late Dyer and Scourer in the Metropolis. Second Edition, price 4s. 6d. boards.

TO TOURISTS.

GRAY'S BOOK of ROADS, on an entirely New Plan; shewing, at one view, the various Lines of Route leading to any required point of Distance; and the Index so arranged as to enable a direct and immediate Reference to any required Route. Price 7s. half-bound; or, with a complete set of County Maps, 12s. With Coloured Maps, 15s.

"This is the most useful travelling companion with which we are acquainted. The various Routes which connect any two places are seen at a single glance, and any required route, whether it be along the principal or cross Roads, is, from the novel mode adopted in the book, traced out with the greatest facility."—*Critical Gazette*.

A NEW PICTURE of the ISLE of WIGHT. Illustrated by a Map, and 26 Plates of the most beautiful and interesting Views throughout the Island, in imitation of Original Sketches, drawn and engraved by WILLIAM COOKE. Second edition, with Improvements. Price 12s. in boards; or in 8vo. with 10 additional Views, 21s. in bds.

EVANS'S WALKS through WALES; containing a Topographical and Statistical Description of the Principality: to which is prefixed, a copious Travelling Guide, exhibiting the direct and the principal Cross-Roads, Inns, Distances of Stages, and Noblemen's Seats. Illustrated with Maps and Views. Price 8s. neatly bound & lettered.

COOKE'S WALKS through KENT; containing a Topographical and Statistical Description of the County, and of THE ISLE OF THANET in particular. New edition, corrected and improved by J. N. BREWER, Esq. Illustrated with several Views and Map. Price 8s. bound.

DEEBLE'S DELINEATIONS of the ISLE of THANET and the CINQUE PORTS; comprising 106 beautiful Engravings of interesting objects in the vicinities of Margate, Ramsgate, Broadstairs, Deal, Dover, Hastings, Rye, &c. With Historical and Topographical Descriptions, by E. W. BRAYLEY. Price 11. 5s. handsomely bound. Another edition on Large-paper, with Proof-impressions of the Plates, in 2 vols. 8vo. half-bound and lettered, 21.

WADE'S WALKS in OXFORD; comprising an account of the Colleges, Halls, and Public Buildings of the University; an Introductory Outline of its Academical History; a concise History of the City, &c. Illustrated by 72 Views, drawn and engraved by STORER. In 2 Volumes. Price 11. 1s. in boards; or on large paper, 11. 12s.

A NEW GUIDE to BLENHEIM, the SEAT of HIS GRACE the DUKE OF MARLBOROUGH; comprising 6 elegantly-engraved Views, and a Ground Plan of that splendid Edifice, from Drawings by J. P. NEALE. With an Historical Description of the Mansion, and a Catalogue of the Pictures. In royal 8vo. Price 6s. in boards.

COOKE'S GUIDE to the LAKES; including a description of the surrounding Scenery, the Vales, Mountains, adjacent Towns and Villages, local Peculiarities, &c. In a Pocket Volume, illustrated with Map and Views. Price 2s. 6d.

EGAN'S WALKS through BATH; describing every thing worthy of notice connected with the Public Buildings, Rooms, Concerts, Crescents, Baths, &c. including Visits to Corsham-House, Prior-Park, Bristol Hot-Wells, and Clifton. Illustrated with 21 Engravings, by STORER. Price 9s. bound.

Books published by Sherwood & Co. Paternoster-Row.

WALKS through **LONDON** and **WESTMINSTER**, by **DAVID HUGHSON, LL.D.** describing every thing worthy of Observation in the Public Buildings, Places of Entertainment, Exhibitions, &c. &c. Illustrated by One Hundred and Twenty Engravings. Price 1*l.* handsomely bound and lettered.

TO CONTINENTAL TRAVELLERS.

A NEW GUIDE to **PARIS**, from the latest Observations; being altered from the Work entitled 'How to enjoy Paris.' By **PETER HERVE**. Third Edition, illustrated with maps and Plates, price 10*s.* 6*d.* bound.

This Work contains an accurate and critical Description of the Buildings, Antiquities, Paintings, Theatres, Literature, Politics, and Religion, as well as of the Manners of the Inhabitants; forming the most comprehensive Guide hitherto published, and calculated for the entertainment and information of persons who, without visiting, are desirous of becoming acquainted with the Metropolis of France. To which are added, Directions for Travelling in the least expensive manner, by three different Routes; an Account of the Environs of Paris; and a copious Index.

"The work, on the whole, is very amusing, even to a resident in Paris, and to a stranger it is highly instructive. We hesitate not to pronounce it the best Guide to Paris extant."—*Lit. Chron.*

COXE'S PICTURE of **ITALY**; being a Guide to the Antiquities and Curiosities of that classical and interesting Country; containing Sketches of Manners, Society, and Customs; also an Itinerary of Distances in post and English miles, the best Inns, &c. with a minute Description of Rome, Florence, Naples, and Venice, and their environs. New Edition, with Maps and Plates, price 12*s.* bound.

COXE'S TRAVELLER'S GUIDE in **SWITZERLAND**; price 5*s.* bound.

COXE'S GENTLEMAN'S GUIDE in his **TOUR** through **FRANCE**; price 7*s.* bound.

CAMPBELL'S TRAVELLER'S GUIDE through **BELGIUM** and **HOLLAND**; price 7*s.* bound.

These Works are all illustrated with Maps, Plans, and Views, and contain a particular Account of the Public Buildings, Places of Amusement, Curiosities, Tables of Distances and Inns; also Tables of the Value of Money at the different places, and General Directions to Strangers.

BELLENGER'S MODERN FRENCH CONVERSATION; containing Elementary Phrases, and New Easy Dialogues, in French and English, upon the most familiar subjects. Eighth Edition, price 2*s.* 6*d.* bound.

BELLENGER'S DICTIONARY of **IDIOMS**, French and English. New Edition, in 8vo. considerably improved and enlarged; price 10*s.* 6*d.* in boards.

*** The Idiom of any language, as has been frequently remarked, not being attainable by rules, since it most commonly consists of evanescent niceties, which no rules can possibly fix or bind, the present work will be found not only useful as a Dictionary of Reference, but highly important to all persons who study to speak the language correctly, and to make themselves acquainted with its critical distinctions. It will also be found particularly useful to young students, by whom portions of it may be learnt by way of task, and thus the idiom be easily and progressively acquired.

COOKE'S

TOPOGRAPHY OF GREAT BRITAIN;

OR

BRITISH TRAVELLER'S POCKET DIRECTORY;

Being an accurate and comprehensive Topographical and Statistical Description of all the Counties in
ENGLAND, WALES, AND SCOTLAND.

THIS VERY CHEAP AND USEFUL WORK CONTAINS A MINUTE DETAIL OF THE

Situation,	Lakes,	Trade,	Monuments,	Natural History,
Extent,	Mines,	Commerce,	Curiosities,	Civil and Eccle-
Towns,	Minerals,	Agriculture,	Antiquities,	siastical Juris-
Roads,	Fisheries,	Fairs,	Pictureque	diction, &c.&c.
Rivers,	Manufactures,	Markets,	Scenery,	

of each County, and is interspersed with a Variety of Information, entertaining to the general Reader,—beneficial to the Agriculturist, Trader, and Manufacturer,—and peculiarly interesting to the Traveller, Speculist, and Antiquarian; and, in short, to every inhabitant of Great Britain.

* * * The Topography of each County, embellished with a Map, and four or more highly-finished VIEWS, may be had *separately*, at the following prices:—

Bedfordshire ..20	Essex20	Middlesex (2	South Wales ..26
Berkshire20	Gloucestersh. 20	parts)40	Staffordshire ..20
Buckinghamsh. 20	Hampsh.20	Notfolk20	Suffolk20
Cambridgesh. 20	Herefordshire 20	Northampton-	Surrey20
Cheshire20	Hertfordshire 20	shire20	Sussex20
Cornwall20	Huntingdonsh. 20	North Wales ..36	Warwickshire 20
Cumberland &	& Rutlandsh. 20	Northumberland. 20	Westmoreland 20
the Lakes ..40	Kent (2 parts) 40	Nottinghamsh. 20	Wiltshire20
Derbyshire ..20	Lancash. (do.) 20	Oxfordshire ..20	Worcestersh. 20
Devonshire40	Leicestershire 20	Scotland (6 p.) 120	Yorkshire (2 p.) 40
Dorsetshire20	Lincolnshire ..20	Shropshire20	Isles of Wight,
Durham20	Monmouthsh. 20	Somersetshire 20	&c.20

The Description of London, separately, price 2s.

A SUPERIOR EDITION is printed on fine Wove Paper and hot-pressed, with coloured Maps, price 3s. each Part; except *North* and *South Wales*, which are 3s. 6d. each.

To each County are prefixed a MAP and List of the MARKETS and FAIRS; an INDEX, shewing the Distance of every Town from London, and of Towns from each other; also a copious TRAVELLING GUIDE, describing all the Roads, Inns, Distances of Stages, Noblemen and Gentlemen's Seats, &c. forming

A COMPLETE COUNTY ITINERARY.

THIS WORK, comprehending the Ancient and Modern History of the British Islands, their Topography, Natural History, Commerce, Agriculture, and Civil and Domestic Economy, deduced from authentic Sources, sufficiently ample, without being unnecessarily diffuse, had long been a *Desideratum* in English Literature; and it was with a view of supplying this defect, that the present work was undertaken.

It will be readily admitted, a perfect acquaintance with the local History and internal Advantages of our Native Country is one of the most useful, ornamental, and desirable branches of Human Knowledge; and there is not, perhaps, a country in the world, more generally interesting to the Scientific Observer, than that of GREAT BRITAIN.

The Plan of this Work has received particular approbation, from each County being divided into *Easy Journeys*, by which means, Persons, either riding or on foot, have the opportunity of viewing many Beauties, which might not otherwise be noticed.

To Frequenters of the various WATERING PLACES in the Kingdom, it will be found a most agreeable *Guide* and *Companion*. The Work may be had complete in Twenty-six Volumes, price Six Pounds in boards, illustrated with Two Hundred and Twenty Views of the most interesting objects in the several Counties.

Books published by Sherwood & Co. Paternoster-Row.

The NEW LONDON MEDICAL POCKET-BOOK, explaining, in Alphabetical Order, the Causes, Symptoms, and Treatment of Diseases; the Properties, Doses, Modes of Preparation, &c., of the principal Medicinal Substances, conformably with the latest Alterations of the Pharmacopœia; with an Appendix of Select Prescriptions in Medicine, Surgery, and Midwifery, including the New French Medicines, Poisons, Tests, Antidotes, &c.; forming a useful Source of Reference for Junior Practitioners, Clergymen, and Heads of Families. By J. S. FORSYTH, Surgeon, Author of the "Natural and Medical Dieteticon," &c. Price 6s. boards.

The COTTAGE PHYSICIAN and FAMILY ADVISER. Edited by DR. BUCHAN, and the Members of a Private Medical and Philosophical Society. Published on the First of every Month, price One Shilling.

The present Month's Number contains some important Observations on Summer Bathing, Sea Air, and Country Excursions; general Remarks on Wells, Waters, and the different Watering Places in England; Directions to be observed in Sea Bathing, Medicated Baths, &c. &c. Also Directions for making several Distilled Waters, Analysis of sundry Quack Medicines, Precautions for Hot Weather, and other seasonable Information.

* * As a work of general information and utility, connected with the Duties of Domestic Life, this will be found to embrace a greater extent of subjects than any of its contemporaries. All objectionable matter is expunged from its pages, and nothing inserted that can be considered any ways improper for family perusal.

The ANGLER'S GUIDE; being a new, plain, and complete Practical Treatise on Angling, deduced from many years' Practice and Observation. By T. F. SALTER. Illustrated with numerous new Cuts and Engravings of Fish, Flies, &c., drawn from the Life. New and improved Edition. Price 8s. in boards; or on fine royal paper, of which a few Copies only are printed, 12s.

An EASY INTRODUCTION to the SCIENCE of BOTANY, through the Medium of Familiar Conversation between a Father and his Son. By ROBERT JOHN THORNTON, M.D., Lecturer on Botany at Guy's Hospital, and Author of several Works on Botany. In 12mo. illustrated with Plates, price 8s.; or with the Plates beautifully coloured after Nature, 12s. in boards.

The BOTANIST'S MANUAL: a Catalogue of Hardy, Exotic, and Indigenous Plants, arranged according to their respective Months of Flowering; and more particularly adapted to the Service of those who cultivate their own Gardens and Pleasure-Grounds. By RICHARD MORRIS, Landscape Gardener and Planter. In 12mo. Price 7s. 6d. in boards.

EGAN'S SPORTING ANECDOTES. A new and improved Edition. Including numerous Characteristic Portraits of Persons in every Walk of Life, who have acquired Notoriety from their Achievements on the Turf, at the Table, and in the Diversions of the Field: the whole forming a complete Delineation of the Sporting World. Illustrated with Coloured Plates and numerous Wood Engravings. Price 12s. in boards.



